

FALL 2013

SMALL FARM QUARTERLY

Good Living and Good Farming – Connecting People, Land, and Communities



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Supplement to Country Folks

SMALL FARM QUARTERLY - FALL 2013

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Cover photo:
A four-month-old doeling nibbles in the grass.

Credit: Stephanie Fisher

SMALL FARM QUARTERLY

Good Farming and Good Living —
Connecting People, Land, and Communities

Small Farm Quarterly is for farmers and farm families — including spouses and children - who value the quality of life that smaller farms provide.

OUR GOALS ARE TO:

- Celebrate the Northeast region's smaller farms;
- Inspire and inform farm families and their supporters;
- Help farmers share expertise and opinions with each other;
- Increase awareness of the benefits that small farms contribute to society and the environment;
- Share important research, extension, and other resources.

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Cornell Small Farms Program Update

New! Campus to Farm Guide

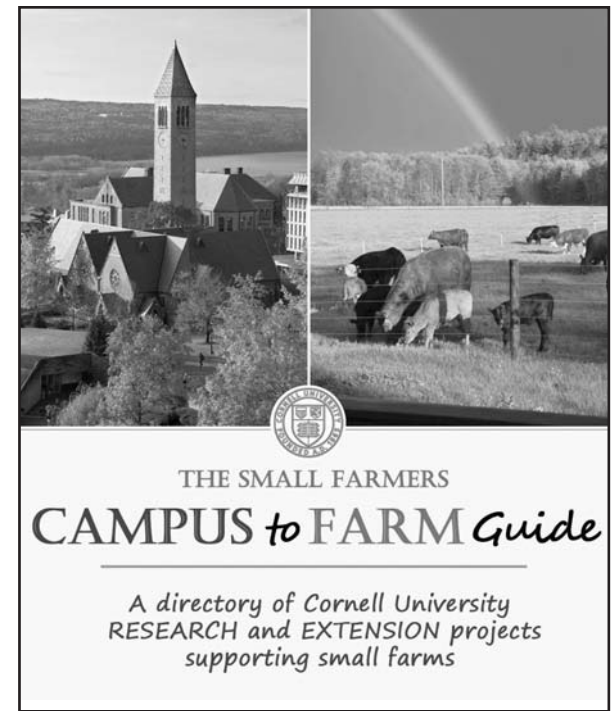
As a small farmer, finding the time to look up the latest agriculture research and extension projects unfolding on the Cornell University campus can be a challenge, especially during the growing season. In an effort to create quick and easy access to these projects, the Cornell Small Farms Program is pleased to announce release of the new Campus to Farm Guide: A Directory of Cornell University Research and Extension Projects

Supporting Small Farms. The Guide brings ongoing research in horticulture, small dairy, livestock, field crops and forages, agro-forestry, farm energy and more, together into one easily navigable booklet. Read the Guide online at <http://smallfarms.cornell.edu/resources/campus-to-farm-guide/>.

Registration is Open! Online Courses for Aspiring, New, & Experienced Farmers

Are you committed to starting a farm in the next two years? Are you a new farmer, still

exploring what does and does not work for your operation? Are you an experienced farmer, looking to grow and diversify your business? Cornell Small Farms Program, through the Beginning Farmers Project, is offering fall online courses designed for farmers at every stage, including BF 101: Square One, BF 202: Planning to Stay in Business, BF 203: Holistic Financial Planning, and many more! From production to finances, the 5 to 7 week interactive courses will give you the knowledge boost you seek. View course rosters and register soon, as classes fill quickly: <http://nebeginningfarmers.org/online-courses/>.



Message from the Editor

Greetings from the Cornell Small Farm Program! We have wonderful news to share. Our family has just grown by one wee bit. Violet Stone and her partner Joshua Pezet are now proud parents of a beautiful baby boy. We wish them all the best as they transition into their new roles.

New roles are something we all face as we progress in any project we undertake. I recently achieved ten years as Director of the Small Farm Program. When I started this position, I was challenged by the diversity of agriculture that small farmers undertake. Until then, I had focused my research and extension program on vegetable production and operated a U-pick strawberry farm on the side. Now, I am thrilled to be sharing stories and working to address needs of our dairies, livestock, crop and many other small farms.

The best part of this role for me has been the remarkable people I have met- small-scale farmers, educators, farm advocates, aspiring farmers, and community organizers. Without exception, these individuals have shown deep commitment and creativity to the work they do for agriculture. Thank you to all who have worked with us to give birth to new projects, hatch crazy ideas, and grow our work to enhance the viability of small farms in the region! It takes a village, and that village is you.

As always, we love to hear from you. Drop us a line anytime!

Best wishes,

Anu Rangarajan



Anu Rangarajan

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New York Farm Viability Institute Continues to Help Organic Dairies Achieve Their Goals

by Tessa Buratto

New York's dairy industry ranks third in the nation with over 600,000 milking cows. Among the large and small 5,150 dairies scattered throughout the state, almost 500 are organic. The New York Farm Viability Institute (NYFVI) values the diversity of dairy producers in New York and aims to fund grant projects that will benefit the overall improvement and continuation of the entire dairy industry. Since the establishment of the NYFVI agriculture grant program, the Organic Dairy Task Force has been included in the proposal review process to create a well-rounded Dairy Opportunity and Barrier Analysis team. As a result of NYFVI organic dairy grants awarded over the years there have been many accomplishments helping the industry remain prosperous and sustainable.

In the most recent grant application round, the NYFVI was able to fund the Organic Dairy Initiative program for the next two years. The program's overall goal is to help organic dairies in New York achieve success. Success can be measured and defined in many ways, but as Fay Benson, project manager for the New York Organic Dairy Initiative explains, the program's success is determined by individual farm needs and the resulting outcomes. The program strives to assist organic dairies in reaching their fullest potential by determining long term strategies to deal with issues such as organic transition/certification, market demand, farm practices, business management, and more.

One of the Initiative's project goals is to conduct a minimum of seven "Managing For Success" (MFS) meetings throughout the state. The curriculum for MFS has been in use by Cornell Cooperative Extension for many years. It helps farmers understand business principles, develop their management style, and adapt their farming methods to work cohesively and efficiently.

Participants can then better identify and plan long term goals and supporting objectives. The MFS curriculum for organic dairies is somewhat atypical because it includes the farm's holistic goals, prioritizing family and community as influential factors in farm decision making. Part of the curriculum also looks at the difference in time management on an organic dairy. Without the "quick fixes" such as antibiotics or other animal treatments prohibited by organic standards it's important for the farmer to spend more time on preventing problems. The same is true for farm crop problems; where herbicides and synthetic fertilizers are not used, the organic farmer must spend more time on prevention. The organic farming style takes time and well thought through plans to be a successful business.

Farmers Using Managing For Success Course to Plan Farm Changes

This past March, Ben and Kate Whittemore of Candor, NY attended the two day Tioga County MFS meetings. Their herd has grown quickly the past three years since they built a new composted pack barn, and are currently milking around 120 certified organic cows. The past year's drought magnified their lack of forage and grain production. This shortage caused a huge profit loss during the winter as they had to purchase off-farm organic feed. At the MFS meetings, the Whittemores brainstormed with other producers how to best address the shortage and prevent it from happening again. Thanks to the help and input of other organic dairy farmers, they have decided to add additional farming acreage to produce organic corn and other crops to feed their herd without buying feed off-farm.

Fay Benson worked with Jim Grace of Grace Ag Consulting to put the Whittemore's plan into a business analysis tool to estimate costs and returns of the

See NY Farm page 7

SMALL FARM SPOTLIGHT**Save This Farm****Community effort saves historical Massachusetts farmland from development**

by Brooke Werley

While searching for more permanent farmland, Jeremy Barker-Plotkin of Simple Gifts Farm tended five acres in Belchertown, MA on land managed by The New England Small Farm Institute (NESFI). The 100 or so acre parcel, as Jeremy estimates, served as an incubator for small start-up farms in western Massachusetts. The tillable acreage was split between several farms when Simple Gifts lived there, and is now part of The Pioneer Valley Grain CSA.

Simple Gifts, co-owned by Jeremy Barker-Plotkin and Dave Tepfer, had an eye out for a new place to farm. One day, Jeremy and his wife were driving down Pine Street in North Amherst and saw Don Gallagher pounding in a sign that read "Save this farm."

Don was then co-President of the North Amherst Community Farm (NACF) Initiative, a group of citizens who had come together to raise the \$1.2 million needed to buy the Dziekanowski farm, one of the last working farms in North Amherst.

The roughly 35-acre plot is situated just a mile from The University of Massachusetts down heavily trafficked North Pleasant Street, surrounded mostly by student housing complexes. Without NACF efforts, the land almost surely would have been sold and developed to match its surroundings.

"We never would have been able to afford the land on our own," said Jeremy.

Even NACF wasn't able to come up with the full amount. NACF took advantage of the Massachusetts Agricultural Preservation Restriction Program (APR), a program designed to encourage land-owners to preserve farmland by offering a \$10,000/acre sum exchanged for an easement agreement that keeps the land permanently protected from development. They also benefited from the state-funded, but town-operated Community Preservation Act. Another large chunk of money came from selling small parcels of the property. Even so, the collaborative was only able to come up with about half of the \$1.2 million mark. They took out a mortgage on the remainder.



Simple Gifts' greens production system.

Photos by Audrey Barker-Plotkin

It was enough to get Simple Gifts on the land in 2006.

"They closed in July, and we started farming in April," laughed Jeremy. "I guess we didn't really know if it was going to work out, but it turned out okay."

That first year they grew about nine acres of vegetables, enough for a market and a 100 member CSA.

"We kind of colonized a small part of the land," Jeremy recalled, "with an abandoned farm all around us."

Once NACF had officially procured the land, there was still a lease agreement to be worked out between the trust now responsible for the farm's mortgage, and the farmers now responsible for the land's production.

The lease agreement was set up as a kind of series of phases, Jeremy explained. "What we're working towards is a 99-year lease, where we own all the buildings, but not the land itself."

The interim lease agreement started with phase one: a renewable five-year lease where the land trust (NACF) owns all the buildings. The initial agreement was that Simple Gifts' lease payments would continue to pay the mortgage, leaving the farmers with a hefty \$2300/month rent. Through the help of non-profit group Equity Trust, the monthly rent is now \$900. The farm owns any buildings or improvements they make to the property.

The plan is that this payment will go down once the 99 year lease is put into action.

"The idea is that in phase two, our phase one lease payments will go retroactively towards buying the existing buildings," Jeremy clarified.

The original buildings include four barns in various states of



Simple Gifts' highlands.



Co-owner of Simple Gifts Farm, Jeremy Barker-Plotkin.

functionality, and the main farmhouse. Jeremy and Dave each have a house on the far end of the property where they live with their families. These buildings are not part of the lease agreement, and are fully owned by the respective families.

Today, Simple Gifts has a little over 15 acres in vegetable production, as well as an expanding livestock operation, including chickens, sheep, pigs, a herd of beef cattle and a pair of oxen. Dave oversees the livestock and plans cover crop rotations while Jeremy runs the vegetable side of the business.

"At Simple Gifts, the foresight of a handful of individuals helped the farm to become an agricultural, educational, and community resource," said Jeremy. "What we want to do is provide people with more of an idea of where food comes from and how land can be used. We're an example of that right here in town."

Brooke Werley is a farmer and writer living in Burlington, VT. She writes farm profiles for agrariantrust.org and keeps the blog <https://thisgrowingup.wordpress.com/>. She can be reached at thisgrowingup@gmail.com.

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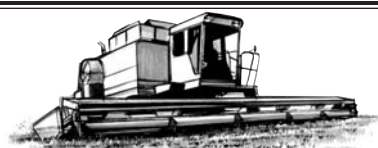
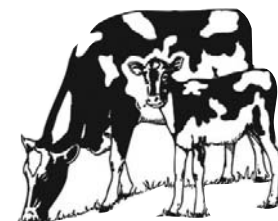
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GRAZING**Bale Grazing: Feed the Cattle, Feed the Pasture****Strategies for winter feeding and pasture management**

by Brett Chedzoy

At Angus Glen Farm, we've made the greatest gains in winter feeding efficiency by reducing human and mechanical energy inputs (my time and tractor time). Several years ago we transitioned to outwintering and "bale grazing", which continues to be a sustainable practice for us today.

We lay out a two-day supply of hay in each paddock and then rotate the cows the same as during the grazing season. We have 75 permanent paddocks across 270 acres of pasture, so we can normally set out an entire winter's supply of hay at once. The cows start "bale grazing" once they finish grazing stockpiled pasture in mid-to-late December. We don't use ring feeders, and have found that the amount of waste hay is about the same whether the cows are given a 1-day supply or a 2-day supply of hay in each paddock. The amount of waste hay increases significantly if more than a 2-day supply is available. We have also experimented the past two years with leaving the natural "jute" fiber twine on the bales to save time and keep the bales intact longer during feeding. No problems yet on our farm, but this could pose a health risk if animals consume excessive amounts of twine or become entangled – so experiment at your own risk!

Watching the 10-day forecast is important when outwintering livestock. We move the herd to sheltered, wooded areas before storms and to sacrificial paddocks during thaws. We manage several conifer plantations on the farm as "living barns" where the herd can be moved temporarily during extreme winter weather. It's important not to repeatedly "beat up" these wooded shelter areas, nor to allow excessive accumulation of waste hay as this will eventually impact tree health.

Some other benefits of outwintering include:

- Cows appear to be happier and healthier by moving around all winter rather than being confined to a muddy barnyard for months at a time. They also stay much cleaner and are able to bed on waste hay in recently bale-grazed paddocks.

- Much less ringworm in the herd.

- We are able to rejuvenate selected paddocks each year through concentrated feeding of hay (nutrients), followed by light frost seeding in the spring. Even without frost seeding, a vibrant sward of grass and forbs should return by mid-summer if care is taken to temporarily remove animals during soft ground conditions.

Even on pastures with wetter, heavier soils graziers should be able to feed at least part of their hay on pasture during frozen ground conditions (if the animals can be moved relatively easily back and forth from a winter yard to the pastures). Every bale that is fed on pasture is that much less manure to clean up in the spring and one more dose of fertility where it matters most.

Another strategy is to focus bale-grazing on one pasture that needs improvement. By spring the pasture may be a mess and ready for renovation, either frostseeding or tillage and seeding, depending on the amount of pugging and wasted hay left. This pasture will be delayed in spring-summer grazing, or completely out of the grazing system for an extended period. Bales can be placed in the pasture and separated by temporary fencing to give the cattle limited access to them. The challenge comes with deep snow; fences may get buried and someone needs to drop the fences when it becomes time to access



Cattle continue to graze as snow flies at Angus Glen Farm.

the next set of bales. If excess hay is available, temporary fencing may not be needed.

Brett Chedzoy is the Sr. Resource Educator - Ag and Natural Resources, for the South Central NY Ag Team. His family own Angus Glen Farm. They outwinter and "bale graze" 100+ head of Angus cattle each winter at their farm in Watkins Glen, NY. Their website is www.angusglenfarm.com.



Cows lounging and 'grazing' on the bales.

All photos by Brett Chedzoy

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NEW & BEGINNING FARMERS

Learning and Traveling by “WWOOFing”

Road trip meets agricultural education

by Elizabeth Burrichter

I had the privilege, after college, of spending a few months doing what many have colloquially called “wwoofing.” WWOOF stands for World Wide Opportunities on Organic Farms, or in some countries, Willing Workers on Organic Farms, and originally, Working Weekends on Organic Farms. The organization began with a small group in England in 1971, but now has over 50 groups around the world. WWOOF is an online database (www.wwoofinternational.org) that links volunteers to organic farms and growers.

The experiences I had working on farms and the communities I discovered through the WWOOF database were like one big (satisfyingly productive) vacation. While international wwoofing is quite popular, my friend and I had an excellent time getting to see other regions of our own country, making connections with other like-minded people. I think the success we had can be attributed to the research and communication we did ahead of time. We specifically chose locations where, based on the owner's description as well as site reviews of previous visitors, we could really learn something and not simply be used to solve labor shortage problems on the farm. Another qualifier was that we only wanted to stay in any one place for about a week, and many sites required that volunteers stay longer than that.

Stays lasting for up to a month would allow for more long-term productivity from the volunteer, but there were enough places that had plenty of volunteers during the summer months, and did not mind our shorter stay.

The types of places we visited were less like traditional farm businesses and more like diverse homestead farms with associated small business projects such as farm stands. Each establishment and the people that lived there were unique, as will be the experience of every “wwoofer.”

Besides a little camping, my friend and I made our first stop in Woodbury, TN, at Yellow Bird Sanctuary, owned by David Wood, a philosophy professor at Vanderbilt University. He lives about an hour from Nashville, and works mainly from home, allowing him to concentrate much of his time on his 175 acres of “sculpture park, wildlife refuge, and retreat.” Of all our hosts, Wood, who required a reference to work on his farm, was probably the most thorough about communication before our arrival, which was reassuring for us as travelers and Wood as our supervisor.

When Wood bought the property, he inherited with it a semi-feral goat herd, a family of Great Pyrenees that seemed to take great pride in protecting the herd, a few barn cats, and a barn that he

was working on converting into an art space. Throughout these many acres of pasture we discovered a silver bullet trailer, a mostly-finished Japanese-style cob sauna, a mostly-finished cabin intended for artists in residence, and a heliotrope constructed on one of the lakes. A half mile downhill rests Wood's beautiful home.

Though some of the labor we did at Yellow Bird Sanctuary was hard work, such as planting trees in dry, hard to dig soil, we mostly fell into a professor-student paradigm with David, and he let us work on art projects and bake bread after watering and weeding his garden.

After meandering through Arkansas and Texas, we spent a week at our next wwoofing stop, The New Buffalo Center outside Taos, NM. The Center is located on the site of the original New Buffalo Commune, which had an unfortunate downfall in the 1970s. Since then the house and little bit of land that went with it was bought and restored by a man named Bob Fies, and rejuvenated as a “sustainable living center.” We helped tend a small but productive hardy vegetable garden and ran a market once a week along with a few other vendors down the road. We spent a few hours each day weeding, harvesting, feeding chickens, and repairing fences, but there was plenty of time left over for floating down the Rio Grande, wandering around the mesa, sharing meals with other travelers, and taking siestas inside the main pueblo house during the heat of the day.

My third wwoofing experience, unlike the others, was unplanned. We made it to San Francisco and had a harder time than expected finding a willing host or cheap hostel. I browsed the wwoofing sites in the area, and spontaneously called Preston Raisin, the owner of Sonoma-Broadway Farms, which was about as close as we could get to spending the week in San Francisco. He was surprisingly receptive to my call, and requested that I forward my resume. We set up camp the next day on his property in suburban Sonoma, where his site manager worked on refurbishing the infrastructure and maintaining a field of organic tomatoes for U-pick.

Like most of the farmers I've met, Preston takes a unique approach to farm management. He is not a farmer by trade, but has a background on Wall Street. I was confused at first by his involvement in starting a small organic farm, but the situation made a lot more sense once I saw him bring his children there on weekends to work, play, and interact with visitors. He allowed us to camp on his



Market garden on the mesa. Weed control is manageable in New Mexico!

Photo by Elizabeth Burrichter

land and gave us full access to the kitchen in the house, in exchange for a few hours of tomato-pruning and watering per day. Preston was extremely hospitable, and there was plenty of time left over to enjoy wine country and visit San Francisco.

Our final wwoofing stop was in Sunny Valley, OR. The Gypsy Café is one of several “womyn's lands” in the area. A bit far from the coast, this valley is very hot and dry during August, which made it a great time to help with the construction of a cob house, which is made out of clay, sand, and other fire-resistant materials, on the property. I spent most mornings helping to make cob, and afternoons picking wild blackberries for preserving. Some evenings the women of The Gypsy Café hosted group work sessions and vermicomposting tutorials in their permaculture-inspired garden. We contributed \$3 per day to have full access to the food in the kitchen and home brews were always available (with a contribution jar to fund future brewing).

Besides being a working homestead and community hostel for traveling women, The Gypsy Café is also home to a publishing group that puts out the We'moon astrological date books, calendars, and cards, which I've since spotted in food co-ops and health stores around the country. The place attracts some very interesting and

dynamic womyn, to say the least.

I recommend wwoofing for other young travelers and budding farmers like myself who want a survey of American sustainable and intentional living. I would also recommend the program for farmers here in the Northeast, as a way to travel-in-place by hosting people from around the world. As long as you can enjoy being a host and set ground rules and expectations beforehand, both sides can have an educational and heart-warming experience.

Additionally, I would recommend the wwoofing website as a tool for farmers themselves to take vacations (if ever possible). I've found that farmers often have a hard time taking time off to relax, and I think many would thrive in a situation where they feel useful to another farm and can engage in an educational back-and-forth with another farmer, while getting to visit a new place. The diversity of landscapes and homesteads that we have available to learn from in America is surely overwhelming, and wwoofing makes our desires to learn and experience a little more approachable.

Elizabeth Burrichter studied plant sciences at Cornell University, and now works as an Extension Assistant with Cornell Cooperative Extension on the South Central NY Dairy and Field Crops Team, as well as at Main Street Farms in



Tree planting in Woodbury, TN

Photo by Lauren Hamilton

WWOOFing is for avid travelers, farmers, curious future-farmers, food enthusiasts, or just eager, free-spirited workers. It is not so much a website for finding an internship, apprenticeship, or mentorship. Explore the world of WWOOFing at www.wwoofinternational.org. For a more serious or thoroughly educational experience, I recommend the database provided by the National Sustainable Agriculture Information Service (www.attra.ncat.org), or a site associated with your state of residence. NOFA (Northeast Organic Farmers Association) provides this service for states in the Northeast, along with lots of other important information for beginning farmers.

RESOURCE SPOTLIGHT**Telling Better Stories Workshop****Journalism training connects small farm educators and farmer writers**

by Amy Halloran

The Small Farms Program hosted "Telling Better Stories: Journalism Training for Small Farm Educators and Farmer Writers" on April 11, 2013. The workshop grew from discussions on how to help people tell stories about small farms and local agriculture.

All fifty spots filled quickly, demonstrating the need for this kind of community education. Forty people came from New York State, and the rest came from Pennsylvania, Massachusetts, and as far as New Hampshire. Thirty-five of these were farmers or ag service providers, and a number of the remaining participants were writers.

The workshop followed two tracks, one focusing on the nuts and bolts of engaging writing and the other on using multi-media tools to reach a particular audience. Instructors included a range of professionals with expertise in communications, particularly in the telling of agricultural stories.

Jill Swenson of Ithaca College has taught journalism for 20 years. While teaching at the University of Georgia, she led an event called the Rural Revitalization Initiative, which brought the faculty out into the communities to connect with farmers and rural business owners, similar to this workshop — except for the lack of web resources.

Back then, she said, it was a big deal to connect farmers and journalists from northern and southern parts of the state through email. Today, the available resources for communication are much more plentiful.

Swenson has a great deal of advice for using the Internet to build strong stories and dig for good sources. In her first session, called "Focus on Fact Finding," she covered the basics of researching stories, diving into ways to use social media and other internet sources to build solid narratives. Swenson's second session, "Interviews, Quotes and Writing Dialogue Style," covered the practicalities of interviewing and the conventions of writing dialogue. She also spoke about the different approaches writers need to have when interviewing farmers, as compared to government officials or other subjects who work in a single office.

"Generally you are going to have to walk along and fit your questions into a farmer's agenda," she said, and recommended asking questions that won't lead to yes or no answers. She also cautioned that farmers are often suspicious of people from the media, based on previous experiences, making it all the more important for writers to create positive, personal connections.

"When you're reporting on farm communi-

ties you're cultivating a long term relationship," said Swenson.

John Suscovitch, Kara Cusolito, and Aaron Munzer are farmers who also work in media. Suscovitch led two workshops in the multi-media track, one on pictures and one on podcasts.

Troy Bishopp, otherwise known as The Grass Whisperer, came to the workshop with previous experience in communicating farm messages in person, online, and in print, mostly about grazing. The Telling Better Stories event intrigued him because of John Suscovitch's skills.

"I specifically went to learn more about photo editing, as well as video and podcast production," Bishopp said. Since the workshop, Bishopp has been able to provide stock photos to Lancaster Farming and OnPasture.com, as well the Conservation District and Upper Susquehanna Coalition website.

Suscovitch's second session on podcasts thoroughly outlined his setup and production methods for Growing Farmers, a weekly podcast series. Kara Cusolito demonstrated how to reuse story ideas from the podcast for several different markets. Aaron Munzer led a session called "Show and Tell," a play on the common command to writers to show, not tell.

Many presenters spoke about how technological advances have changed, or not changed, interactions in media.

"My communications career predates the internet, predates social media, and so much has changed but so much has stayed the same," said Craig Cramer, communications specialist in the Department of Horticulture at Cornell, who led a session titled, "Big ideas. Small words. Short sentences."

"People don't read, they scan," Cramer told participants, advising them to cut word count by 25-50 percent and see if they could still get their point across. He advised making fewer words do the job by using self-editing, short sentences, and paragraphs containing only one main idea.

"Even though the media has changed, the main thing is still to focus on the audience," said Cramer. "Anybody who really wants to do this needs to have that often elusive ability to focus in and think like the people they're trying to connect with. Know what their information needs are, and you'll know the best way to connect with them."

He enjoyed being a part of the day because he understands the value of storytelling. "Farmers have a story to tell, and that story can help make their farms successful," he said.

Rebecca Heller-Steinberg came to the workshop because she works for small farms in a number of capacities, and wants

to be able to communicate well with the various publics she serves. For instance, she provides a newsletter for the winter CSA she runs. Extended Harvest connects members with frozen and fresh foods from the Binghamton and the Hudson Valley areas, and features winter add-ons like regional grains. This summer, she's coordinating the Binghamton Farm Share Program, a modified CSA pilot program aimed at increasing access to healthy, affordable food. She looks forward to applying her honed skills in an upcoming writing project that includes interviewing Deborah Madison of NOFA-NY's Organic News.

This was the first time the Cornell Small Farms Program offered training of this sort, aiming to develop the storytelling skills of both farmers and educators. While consumers receive a lot of information from films, books and other big-picture, national media outlets, they are ready to see and hear the stories that illustrate people who are making farms work in their locales. Exciting stories of local projects show consumers the benefits of supporting small-scale agriculture in their own backyard.

"Evaluation feedback showed a lot of interest in a more intensive follow-up training," said Violet Stone from the Small Farms Program. "We hope to continue to offer communication-themed workshops to farmers and agriculture educators in the future."

Amy Halloran writes about food and agriculture. A lifelong baker, she is especially interested in the revival of regional grain systems in the Northeast. She also blogs at amyhalloran.com and FromScratchClub.com, and archives her work at amyhalloran.net. Videos, handouts and story shares from the workshop can be found at <http://small-farms.cornell.edu/projects/journalism-training/>.

NY Farm from page 3

farm management changes. Now the Whittemores have a planned target goal to reach, and will continue using financial tools available from the NYFVI funded program to further track their progress toward success.

Benson says the organic dairy project will be conducted in at least six other locations across the state. If you are interested in having it in your county, contact your Cornell Cooperative Extension office and inform them of your interest.

For more information about organic dairies in New York, contact Fay Benson at 607-753-5213 or by email to afb3@cornell.edu. For more information about the Organic Dairy Initiative visit: www.cuaes.cornell.edu/cals/cuaes/organic/projects/dairy/dairy-initiative/index.cfm.

Tessa Buratto is the Grant Manager for The New York Farm Viability Institute.

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HORTICULTURE

Willow, A New Old Crop

by Marilee Williams

Do you have marginal land that is too wet for conventional crops or pasture? Would you like to raise a perennial crop that requires minimal care and provides an annual harvest? Then maybe basket willows are in your future!

A hardy, adaptable, and handsome plant, willow (genus *Salix*) has many valuable uses. It grows from temperate zones to the arctic, from coastal plains to mountainous regions. Most willows are dwarf shrubs to small trees, though some can grow to a height of 80 feet.



Willow backpack.

Photos by Bonnie Gale

Cultivation for biomass energy production has put willow in the news recently, but it can be grown for more traditional uses, too. When woven into baskets and furniture, willow is called wickerwork. It can also be formed into trellises and plant supports or woven into fences called wattle. Certain species of willow develop long, pliant shoots in summer which makes them particularly well-suited for weaving. Willow's quick growth makes it perfect for erosion control. Annual harvest of each season's shoots provides useful cuttings while leaving the roots in place to protect and stabilize the soil.

Willow cultivation is simple. Moderately fertile, moist soil in a sunny location will support a willow

plantation. By planting a cover crop for a season or two, you can get a jump on weed control. Careful planning of plant spacing to accommodate cultivation equipment or mulching around the plants will also help suppress weeds. As with any crop, prepare the planting site by tilling and applying needed amendments.

Planting Stock

Ten- to twelve-inch long cuttings of one- to two-year old willow branches make suitable planting stock. These can be purchased or gathered from the wild. Any willow can be woven but the best varieties have long, flexible shoots with little core, or pith, as these contain the greatest percentage of wood and will make the most durable willow products. You can cut a branch from a willow in the wild to observe its interior and test the flexibility.

When creating your own cuttings, portions of the lower two-thirds of the willow branch should be cut into planting lengths with a very sharp knife. A smooth cut surface with little injury to the bark will ensure the greatest chance of success. To speed identification in the field, cut the top end straight across, with buds pointing up, and with the end to be planted cut at an angle. The angle allows for easier insertion into the prepared ground and ensures that the proper end is planted.

Willow cuttings can be taken any time during the dormant season. After cutting into planting lengths, bundle with the growth direction aligned. Store the cuttings in moist sand or sawdust in a cool spot indoors or outside in the shade of a building, covered with straw. It is essential not to let them dry out.

If gathering your own cuttings isn't to your liking, a quick search on the Internet will provide the names of nurseries which offer willow for sale. Many of the species sold are decorative and enhance landscape design with their beautiful and various bark colors. This trait



A living willow dome in Amagansett, NY.

can also add color to the woven products you create with your willow, though the colors become more subdued as the cut willow dries. Some willow growers may provide detailed descriptions of the characteristics of the species they grow, such as average annual length of the rods or whether the rods are thick and sturdy enough for furniture.

Spring Planting

As soon as the soil is frost-free in the spring, willow can be planted. The twigs can simply be pushed into the soil if the planting bed is soft and friable. Firmer soil may require a hole to be created first by pounding a metal rod into the ground. With either method, each cutting should be planted deep enough that only one or two buds remain above ground and the soil should be packed firmly around it to prevent it from drying out.

If rain is sparse, you'll want to irrigate your newly planted willow plantation. Remove weeds by pulling or cultivating. Mulch, if you can, as this will help retain moisture and keep weeds at bay.

Harvesting

Willow is harvested during the dormant season. This can be any time after the leaves have fallen and before growth starts in the spring – usually November through March. If you can time your harvest to occur during the waning moon, the vitality will be strongest in the root system, which will help ensure future harvests. Cutting the rods when temperatures are above freezing will prevent the wood from splintering and improve the harvester's mood as well!

Use sharp clippers and cut the rods carefully for the first couple of seasons to avoid uprooting the

young plants. If the first year's rods are not long enough for the weaving that you plan to do, they can be used for more cuttings to expand your willow plantation. With adequate moisture and weed control though, the second season should provide plenty of very useful lengths of supple weaving rods, anywhere from 4' to 9' long. No matter the length, willow intended for weaving must be harvested every year, so the rods remain pliant with no branching.

The willow rods should be cut as close to the ground as possible, sorted by variety and gathered into bundles of a size that is easy to handle. Tie the bundles in several places to keep the rods straight. Store them in a dry place, upright, leaned against a wall or lying flat. Placing them in the trusses or rafters of a barn or garage will keep them out of the way and allow for good air circulation for even drying.

Creating Your Products

The best part of willow culture comes next: weaving your rods into useful and attractive items. The dried rods should be sorted by length so you have exactly the size you need, ready when you need it. Untie the bundle of dried rods and place them cut end down in a large, deep container, such as a barrel. Pull out the longest rods from the bundle and set them aside. Then pull out the next longest rods and lay them crosswise of the first bunch. Continue in this manner, criss-crossing the bunches, until you have sorted the entire bundle. Re-tie each bunch, and you're ready for soaking.

Willow can be woven "green", directly after cut, but as it dries it will shrink and lose nearly half its thickness. Green weaving should

be done tightly and beaten well, but it will still shrink and loosen as it dries and the basket or fence you create will be less sturdy. Furniture should never be woven with green willow. The strongest and most durable products are woven from dried willow that is soaked to make it pliable. And if you are putting this much effort into growing, harvesting and weaving, you surely want your basket or chair to last as long as possible!

Several methods are used to prepare willow for weaving. The bark may be stripped off and rods may be split or dyed, but those techniques require more tools and time. The easiest method is to just soak and weave, being sure to soak the larger rods for a longer time and keeping the rods as straight as possible while they are wet.

A class with an experienced basket weaver is a great way to learn proper technique and how to use the basket-weaving tools as well as to be inspired by a master, but it is not essential for making beautiful and useful products. Become inspired by a new old crop and let willow fire up your imagination and unleash your creativity!

Marilee Williams grows basket willows and more in the Finger Lakes region of Central New York.

Looking for a willow design class in NYS?

Bonnie Gale of English Basketry Willows is a professional willow basketmaker located in Norwich, NY and is offering several classes in 2013. Visit <http://www.englishbasketrywillows.com/Classes/index.htm> to view the schedule and some of her work.



Willow basket.

FARM MEMOIR**The Bad Bread*****A letter from Stuart Cheney***

by Stuart Cheney

I guess it was back in '96, things were going pretty well. I was driving the milk truck and Fred was running the farm. Calves weren't worth anything though, and Fred asked if he could keep some of the bulls and raise them, as we weren't having many heifers.

About the time he began keeping the bull calves, I was able to bring home waste milk that comes out of the hose on the back of the truck. Every truck has from one and a half to four gallons of milk that goes down the drain, but if you have something to put it in you can have it. Fred was also getting bread from a nearby bakery, a whole seven foot by ten foot trailer load every-other day. It was a lot of work but it paid off handsomely. He had some kids come in the afternoon or evening and he'd back the trailer upstairs on the barn floor and they'd take the wrapper off and throw it down the hole into the feed cart. Everybody got some, fed by size. The cows each got a loaf and weaned calves got three or four slices. Worked well; the calves grew and grew.

Some feller came around, said he was from a big garbage company up in Maine and they had a contract with the bakery to get rid of their old bread. He said they'd deliver a whole big dumpster load for \$50. So Fred had them bring up a load, they dumped it right where we wanted it, he gave them \$50, and they left. I went and looked at the bread, and it had been compacted with the wrappers still on it. I thought to myself, "Wonder why they did that."

Well, it snowed about a half inch that night that was in April. The next night I was home and had just gotten into bed when the phone rang — it was Fred. He said Danny, my nephew, had gone to feed some grain to the dry cows and big heifers (31 in all) and they wouldn't come down to where he was. Fred shut the milkers down and went out back to see what was going on.

It was a misty night with a little snow in places. There was also a heavy moon trying to shine through the fog. Fred found six or seven animals down and they didn't seem able to get up. That's when he had called me, told me the situation, and I told him to call the vet.

Well the vet came, and long story short, they determined that the cows had alcohol poisoning. It seemed the critters had been reaching under the fence and eating the bread. They had gotten out several times.

Doug Johnstone from the Department of Agriculture had heard about it and he came down to offer any advice that he might have. He told Fred to take the loader and move it all down to the foot of the hill and burn it, which he did. It was during this maneuver that he discovered that underneath all the bread was a sizable pile of raw dough.

The cows must have smelled the fermenting dough and were reaching way in under the wrapped bread, which was slippery and half frozen. When they got a good mouthful of raw dough and pulled it out, the wrapped bread would slide down and cover up the dough again, which is why we didn't notice it until it was too late.

The whole thing added up to about seven or eight cows dying. Lots of others were affected only it didn't kill them. It affected any cows that were going to be freshened within the next ninety days or so. In the end we had to dispose of them.

Fred had a friend whose name was Dan who is or was a computer "whiz kid". Dan contacted everybody who was anybody and we got tremendous support from all over. We even got offered financial support from two large feed companies. He also contacted a lawyer who said we should definitely sue. The lawyer also said we should wait until the statute of limitations ran nearly out, which would be three years. So we waited three years.

By the time the lawyer said it was time to do something I think it was August of '99. He called a meeting and outlined what was going to take place. There would be a meeting at the end of August between our lawyer, the bread feller's lawyer, and the judge to see if the case had "Merit". Long story short, we found out our lawyer never showed up for the meeting so the judge set a new date for another.

Well, Dan got to wondering one day how things went at the meeting so he called the courthouse and asked if they would send him a copy of the minutes. He was told there was no such thing because our lawyer never showed up, again. Dan was dumbfounded. They also said the judge dismissed the case. Now Dan was really sick. He had a lady friend who was a lawyer downtown and a really sharp cookie. He called her up and told her the story.

She was looking at her calendar while Dan was talking and she said, "Dan, you have 30 days to appeal this ruling and according to my calculations 30 days is up today. It's 4 PM now. The courthouse closes at 5. Get yourself up there and call me as soon as you do. I'll tell you what to do."

Well, Newfane is fifteen or more miles away, but he made it. At the courthouse, everybody was just zooming out, about to head home, but good ole Dan! He got them all turned around and used their phone to call his lawyer friend.

The outcome of it all was we got ourselves a new lawyer. After some reorganizing, we made a trip to White River to finish our depositions, then later to Woodstock where we met with a mediator. This is where you get a chance to settle out of court.

When we got to the mediator's office, my lawyer and I were put in one room, while the other guy, his lawyer, and his insurance rep sat in another room. The mediator went over to the other side and told them, "Write down how much you're going to pay the Cheney's" and they started with \$5,000. He brought it up to us and we told them no, and it went back and forth like this until the mediator said, "OK, I don't think they're going to go any higher."

I kept saying no, three more times near the end there, and the old guy was getting pretty upset with me and so was Fred. But I knew how far I should go, and I was also pretty



Cheney Cattle.

Photo by Stuart Cheney

sure how far they'd go too. So I stuck to my guns. The last time the mediator told me to take the number because it would be the last offer. I thought to myself, "This is my show, not yours, buddy, and we'll see." So I wrote

down my final figure and they accepted it.

Ask me what it was and I'll tell you sometime. My little secret, it might be worth knowing.

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ENERGY ON THE FARM

Sunflowers: From Field to Fuel

Drawing the connection between diversified agriculture, renewable energy, and food production in Vermont

by Rachel Carter

Farmers across New England want to diversify operations, lower fuel and feed costs, and be more self-sufficient. Momentum is gaining for raising oilseed crops like sunflowers, canola, and soybeans to make biodiesel for fuel and oilseed meal for livestock feed, in addition to being sold as crops.

State Line Farm Biofuels is at the forefront of oilseed crop growing and biodiesel processing in the Northeast and the first to grow and process on-farm in Vermont. Located in North Bennington, the Williamson family has owned and operated State Line Farm since 1936. The falling milk prices of the 1990's led to diversifying operations and today their maple syrup, honey, sorghum syrup, and hay are sold in local markets. In 2004 owner John Williamson and his family began experimenting with sunflower, canola, mustard, and flax varieties in an effort to fuel their farm with biodiesel.

State Line Biofuels operates a 120,000 gallon/year (300 gallon per batch capacity) biodiesel production facility, providing biofuel and livestock meal for on-farm use. The production capacity of State Line Biofuels can additionally serve oilseed pressing and biodiesel production needs of 10-15 farms within a 30 mile radius, encompassing 1,500-2,000 acres of oilseed crops. State Line Biofuels is also an educational demonstration center for developing and teaching best practices for small-scale oilseed crops and biodiesel production in the Northeast.

Biodiesel fuel can be used to power most any diesel engine equipment on varying levels of scale. "We used to have a really small batch processor making about 100 liters to a batch. Then we moved to the biobarn and built a reactor that makes about 400 gallons to a batch — a batch of fuel is the amount of oil that is reacting to alcohol and lye," John explains.

The harvested seeds are dried and stored in a grain bin and then moved through an oilseed press to yield two products: meal and oil. Using the relatively simple batch reactor conversion process (oil, alcohol and lye), the oil from these crops becomes a low cost renewable fuel after being refined into biodiesel.

Though oilseed meal could be considered a secondary byproduct of processing, it has great value as a potential



John Williamson pouring biodiesel.

feed for livestock like dairy cows, goats, hogs, chickens, and sheep. It's said the Amish feed sunflower meal and oil to their horses, which is what gives them their healthy and shiny coats.

At 40 plus acres of sunflowers, flax, mustard, and canola, John averages 75 gallons of biodiesel per acre. Even factoring in wind, rain, and wildlife damage, John considers the State Line Biofuel operation a low cost fuel source, paying for both time and equipment.

"If you had to start from scratch, it is cost prohibitive," says John. "But if a farmer is already set up to grow grains, you're most of the way there. If you can plant, harvest, and store grain, it's really just the oil mill and biodiesel mixing equipment that's needed. There are many ways to look at costs, but the bottom line is it's cheaper than buying fuel and money doesn't leave the farm."

John has tracked the cost from tilling the ground to harvesting and processing oilseeds, and at his calculations the \$2-2.5 per gallon to make biodiesel is cheaper than buying petroleum. The oilseed meal byproduct further shrinks operation costs by reducing the need to purchase grain. Additionally, John sells any surplus feed, oil, and biodiesel.

Located north of State Line Farm near the Canadian border is Borderview Farm, a small-scale biofuel production facility located in Alburgh, Vermont. Having sold his dairy herd after 25 years of dairy farming, farmer-owner Roger Rainville began experimenting with small, farm-scale biodiesel production in 2008. Now housing two presses to test oil extraction and processing efficiencies, Borderview Farm is an applied research facility partnered with University of Vermont (UVM) Extension specializing in oilseed crops, perennial grasses, small grains, hops production and bio-based renewable energy research and development projects relevant to all size farms.

Borderview Farm leases a number of acres to UVM Extension for various oilseed crop field trials, including soy, sunflower, canola, flax and camelina. Roger also actively assists as a research partner to Dr. Heather Darby (UVM Extension) by preparing, seeding, and harvesting the plots; and then pressing the oilseeds for conversion into biodiesel and livestock meal. Launched in 2012 and funded by the Vermont Sustainable Jobs Fund, the Farm Fresh Fuel Project attempts to include as many farmers as possible in Grand Isle County, Vermont in the production of oilseed crops. By producing their own fuel, food, and animal feed with oilseeds like sunflower and canola these farms will serve as a unified model for other small communities.

Scales of biodiesel operations can range from millions of gallons on a commercial scale to under 100 gallons at the hobby scale. As a small scale producer, Roger estimates 100 to 3000 gallons is affordable for farmers who make their full living farming. "When you're farming for a living and have your own equipment and land, it's utilizing what you already have that makes biodiesel affordable," Roger states. Like John at State Line Farm, Roger finds when calculating the cost of producing the fuel, including fees and processing, it is still cheaper than buying fossil fuels.

Sunflower oil is especially high in protein and is Roger's choice oilseed crop. "There are very few oils that can be made into biodiesel and sunflower is one of them. Sunflowers have one of the higher percentages of oil content. Soybeans are only 25% oil content, sunflowers are 35-45%. Plus, the community loves them. Sunflowers are beautiful and folks enjoy the aesthetics and a renewable energy farm source with less odorous results, especially in such a pristine and delicate landscape as the Champlain Islands," says Roger.

Not only does Roger refine his own farm's sunflower and canola seeds into biofuel, he also works with the Farm Fresh Fuel Project and Champlain Island (Grand Isle County) farmers to process a percentage of their oilseed crops. Farmers take their seed harvest to Borderview Farm, and it is returned to them as biofuel. "The program goal is to harvest 100 acres of oilseeds for 7-10 thousand gallons of fuel. Forty percent of the oil is produced into biodiesel and the remaining meal is used as a feed and fertilizer source," explains Roger. UVM Extension researchers have also demonstrated the benefits of oilseed meal as a well-balanced soil amendment.

Full Sun, a new company co-founded by Vermont bioenergy industry innovator, Netaka White, is developing a commercial oilseed processing facility outside of Middlebury, Vermont. Netaka has been at the forefront of developing

See Sunflowers page 11



John Williamson in the State Line Biofuels Farm biobarn in North Bennington.



Roger Rainville demonstrates the oilseed press at Borderview Farm.

ENERGY ON THE FARM

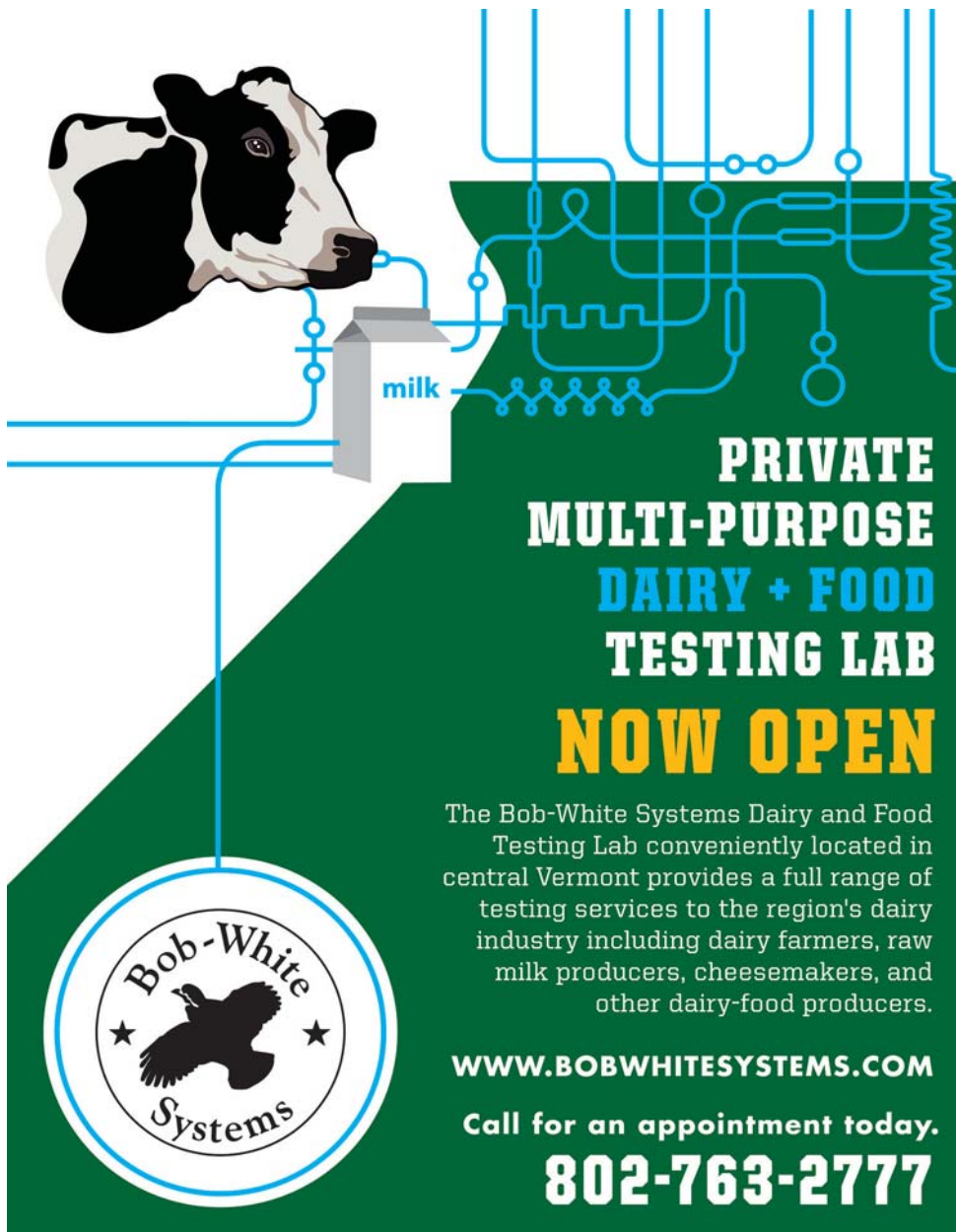
Sunflowers from page 10

Vermont's oil crop infrastructure & commercial biodiesel markets since 2003. He directed the Bioenergy Initiative at the Vermont Sustainable Jobs Fund, a primary funding, technical support, and infrastructure development organization for both State Line and Borderview Farms.

Full Sun's business model as a northeast regional purchaser and processor of specialty oilseed crops is to recruit family farm-

ers to grow organic and non-GMO sunflower, canola, soybeans and other oil crops. Full Sun then purchases and processes the seeds into two co-products: edible oil and high protein meal. The oil is sold into the food sector and for livestock feed, and the oilseed meal (also a feed ingredient) is sold to local dealers and farm direct.

"This business model will have a direct impact on the number of Vermont farms earning a profit by growing oil crops in their rotation. Full Sun will contract with local col-



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Sunflowers fields at Borderview Farm in Alburgh, VT.

Photos by VT Bioenergy Initiative

lectors to insure our used cooking oils are picked up from local restaurants and food service businesses and are converted to renewable fuel by Vermont biodiesel producers," describes Netaka. "In this way, Full Sun cooking oils return to our grower/partners in the form of biodiesel to power the next season's crop production, completing the 'Farm-

Food-Energy' cycle."

Rachel Carter is communications director at the Vermont Sustainable Jobs Fund, a non-profit organization created by the Vermont Legislature in 1995 to accelerate the development of Vermont's green economy. She can be reached at rachel@vsjf.org.

A first step in exploring bioenergy potential is to connect with nearby farmers over interest, equipment, and land. In Vermont, the Food System Atlas – www.vtfoodatlas.com – provides a searchable mapping interface for farmers to find one another based on location, key word, or farm category. Farmers seeking pertinent information to begin collaborating with other farmers and building relationships with renewable energy businesses and organizations are encouraged to connect with their local Extension offices.

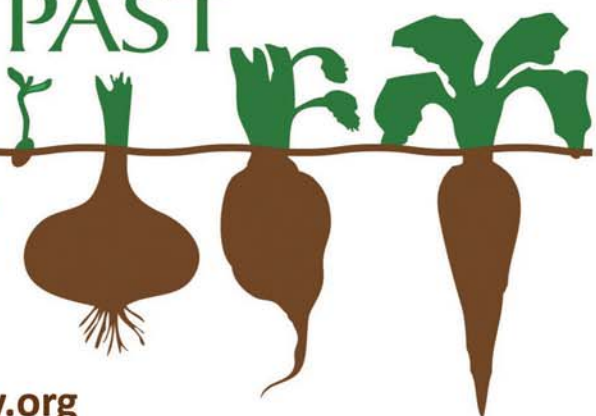
For further information on Vermont's agronomy research in relation to growing oilseed crops, the UVM Extension Northwest Crops and Soils team headed by Dr. Heather Darby provides crop production trial reports and other resources at www.uvm.edu/extension/cropsoil.

For considering the overall oilseed processing infrastructure, the newly released Vermont Bioenergy Initiative website – www.vermontbioenergy.com – provides reports and summaries detailing capital expenses and breakeven economics as well as educational videos, renewable energy resources, and project development ideas to be used in the classroom, the field, or in advocating for sustainable business ventures.

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SEED STORIES**Fruition Seeds: A Model for Collaborative, Regional Seed Development**

by Petra Page-Mann

With over thirty years of combined agricultural experience, Matthew Goldfarb and Petra Page-Mann co-founded Fruition Seeds in 2012 to improve and develop our regional genetic resources. Currently growing over sixty seed crops on three acres in the heart of the Finger Lakes of New York, they are dedicated to organic, open-pollinated and regionally adapted seed grown in and for Northeast farms and gardens. They currently sell seed through their website, fruitionseeds.com, and select retail locations while offering workshops throughout the Northeast on the significance and techniques of seed saving. Fun how-to videos on seed saving can be found on their Facebook page as well.

Petra has worked for seed companies large and small on both coasts, saving her first seeds as a child. Matthew has farmed across the country at all levels of management, from apprentice to executive director. Establishing Fruition Seeds in Petra's hometown, the couple is putting together their extensive collective experience to build their seed company.



Matthew cleaning tatsoi seed.

The significance of farming in Petra's hometown should not be underestimated; relationships and opportunities offered by familiar, committed communities are extensive. From finding land to sharing equipment, from amassing organic matter to simply eating a cooked meal every night, the benefits of beginning a farm where one's roots are deep are innumerable. Even on their back road, friends stop by all the time, often with pitchers of lemonade in hand. As a seed operation, there is much abundance that is "by-product" (with thousands of ripe tomatoes, all Matthew and Petra need is the seed!), and becomes a tremendous gift back to the community.

The foundation of a resilient regional food system is quality, well-adapted and diverse genetics. As much about cooperative efforts as it is about seed saving, this work cannot be done alone.

Fruition Seeds collaborates extensively, always building connections and opportunities. The original vision was quite insular: in response to a seed industry focused on 'wide' adaptation and broad distribution, a company committed to 'regional' adaptation selling only its own seed seemed compelling. However, as the couple explored the models and values most central to their lives, they found the strength and capacity of collaboration to be a more appropriate response for their vision.

This collaborative approach informs every decision made by Fruition Seeds. From the two farms they lease to resources accessed within academic, extension, for-profit and non-profit spheres, so much of what the couple has accomplished is a result of collaboration in one form or another.

Relationships with fellow growers of high-quality, certified organic seed in the Northeast are central to their vision. For example, collaborating with Nathaniel Thompson to grow seed on Remembrance Farm in Trumansburg, NY is a highlight of their organic, farm-based, open-pollinated genetics development.

Thompson is a commensurate collaborator, building cooperative CSA models and organizing extensive community equipment sharing while producing dozens of acres of



Petra leading a class on seed saving.

biodynamic field greens. Aware of the significance of seed both economically and ecologically, Thompson is invested in developing genetics suited to his operation. In collaboration with Fruition Seeds he has planted two acres of crops for seed.

Thompson takes responsibility for soil fertility, planting and cultivation while Fruition Seeds makes selections, harvests and cleans the seed. The seeds are then divided, fulfilling Thompson's seed needs for the following season while the remainder is sold through Fruition Seeds. These large-scale grow-outs make significant improvements in varietal characteristics. In 2013, they grew 1/3 of an acre of red Russian kale, making selections for over-wintering, uniformity, vigorous spring regrowth and disease resistance, roguing out thousands of plants in the process.

This relationship is pushing boundaries and creating opportunities, developing systems to grow seed on large scales for the Northeast. Already some significant breakthroughs have been made, many unintentionally. For instance, when they began connecting in mid-winter, Thompson had a number of crops overwintering in the field that

had been planted for greens but not yet harvested. Among other crops expected to survive (kale and Asian greens), several lettuces regrew in the spring, were selected and indeed produced quality seed in the open field remarkably adapted to Thompson's soils, climate and production style. Growing overwintered lettuce for seed in the field in the Northeast at farm-scale is a remarkable discovery and further experiments are well underway for 2014.

Fruition Seeds is developing systems of producing seed here in the Northeast even for crops not generally produced here, like lettuce. Another crop that is challenging to grow in the Northeast, on any scale, is carrots. Dry-seeded biennials that cross with Queen Anne's Lace up to a mile, carrots and their production have moved to the arid Pacific Northwest for a reason. However, consider the variety of carrot 'scarlet nantes,' developed in a cool, wet region of France before they could outsource production to the Willamette Valley. It is possible to grow quality seed for quality food in any bioregion; the limit is our collective, collaborative imagination.

See Fruition page 13



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Farm Credit East Congratulates Family Farm On the Road to Organic

Cobblestone Valley Farm: 2012 NOFA-NY Farmers of the Year



Maureen Knapp of Cobblestone Valley Farm

Last year, NOFA-NY recognized Cobblestone Valley Farm as a state leader in organic farming. However, for the Knapp family, reaching that status was a long row to hoe — so to speak — and required a financial partner like Farm Credit East.

Given the three-year process required to get their farm certified, the transition was far from easy. “It takes three years for the land and three for the herd,” said Maureen, acknowledging the challenge of paying organic feed prices for several years without the benefits of being certified organic.

Throughout the transition process, the Knapp family relied on their partnership with

Farm Credit East to bridge the financial gap. “I look at Farm Credit East as farmers themselves,” said Maureen. “They have the same attitude as a farmer would have, and never pushed us with a hard sell.” Farm Credit East loan officer Jay Bana shares Maureen’s enthusiasm for their work together. “We really respect what the Knapps do,” said Jay. “And we love working with farms that are committed to running unique, successful operations.”

During a period of drought, the Knapps found themselves facing a cash crush. In addition to providing them the lending assistance that they needed, Jay helped the family think strategically while navigating lean times. “Jay was very consultative,” said Maureen. “He asked us questions that got us thinking along different lines, which was incredibly helpful in our overall approach.”

In addition to lending needs, Maureen and her family rely on Farm Credit East for their appraisal and tax preparation services. “Anytime I have tax questions, I pick up the phone and give Farm Credit East a call,” said Maureen. “Every time I work with them, I get the sense that they’re in this with us. It’s nice to have a partner like that.”



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Fruition from page 12

Petra and Matthew have had countless mentors in the seed industry as they’ve built Fruition Seeds; here are a few that have impacted the couple.

Brian and Chrystine of Uprising Seeds in Washington have demonstrated the importance of designing a business around their lives and not their lives around a business. Don Tipping of Siskiyou Seeds in Oregon has shown the significance of, on all levels, keeping it local. Tom Stearns of High Mowing Seeds in Vermont taught the necessity of talking with everyone as well as focusing on growing, selecting and breeding the very best seed. Frank Morton of Wild Garden Seeds in Oregon has modeled excellent seed selection and variety development within the context of market gardening. David Greenburg of Abundant Acres in Nova Scotia offered the invaluable and constant mantra, ‘do you want to weed vegetables or breed vegetables?’ Neither last nor least, Will Bonsall of the Scatterseed Project in Maine taught them to sing songs and ‘let nature happen.’

Fruition Seeds loves the work they do and the people they work with. Their biggest challenge is growing at a rate that doesn’t compromise seed quality as they expand available quantity. They look forward to growing in collaboration the highest quality organic, open-pollinated and regionally adapted seed in and for the Northeast.



Matthew cutting kale seed.
Photos by Petra Page-Mann

Please send them any questions or comments about seed and seed saving in the Northeast.

Petra Page-Mann is the owner and farmer of Fruition Seeds in Naples, NY. Her website is fruitionseeds.com and she may be contacted at petra@fruitionseeds.com.



Petra inspecting a lettuce crop.

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Small Farm Quarterly Youth Page

My Bookend Internship

The summer of 2013 brought me to two farms on completely opposite ends of the dairy farm spectrum

by William Mathew Cain

Growing up on a Connecticut angus farm seemed wonderful until I joined 4-H and saw all the excitement of my new dairy farm buddies. I wanted what they had. My first show heifer was not an angus, rather it was a "leased" Holstein. Dairy just gets into your blood I guess.

Being 16 this year finally gave me the freedom to see dairy up close with two exciting summer internships: one at the prestigious Arethusa Dairy Farm in Litchfield, CT; and later at the 3,300 cow Curtin Dairy in Bridgewater, NY. I think of these experiences as "bookends" in today's world of successful dairy farming.

Starting first at Arethusa, I came face to face, or more accurately "butt to cheek" with high-end production cows, the kind that routinely sell in the hundreds of thousands of dollars and win consistently at the most competitive national dairy shows. Emails from visitors arrived weekly to my boss, Matt, from all over the world. Prior interns traveled from as far away as Russia and Australia to work with and learn from this collection of "super cows."

While interns tend to be at the bottom of the knowledge pyramid, those people working above me at Arethusa made me feel special. Listening to vets coming from as far away as Maryland to perform embryo transplants, flushes, and the commercial aspects of state-of-the-art breeding, I quickly began to understand the linkage between what is

taught formally in Ag science and its application in the real world.

Arethusa is very much a "retail" enterprise, conducting community tours and selling branded products to local schools and through an offsite commercial store. Cheeses, yogurt, ice cream, and a variety of milk flavors carry the Arethusa name and label for excellence. Visitors associate the quality of the herd, as evidenced by success in the show ring, with both better health and flavor of its consumer products. Unlike a "Norman Rockwell" image of a New England dairy farm, Arethusa portrays an image of modern science and technology central to agricultural efficiency and evolution.

The "bookend" Arethusa represents is breeding genetics and herd improvement. Herd managers develop their herds to complement real goals and objectives of commercial dairymen using measurable data. Unlike the next dairy operation I visited, only a small part of Arethusa's income comes from dairy products sold to local consumers. The biggest percentage of farm revenues comes from the sale of breeding cows and embryos on a global scale. While milk is a "commodity," Arethusa's retail products and prize-winning heifers are "brands," priced very differently and requiring sophisticated marketing.

My next course on the 2013 internship menu was Cassville, NY, home of the Curtin Dairy

See *Bookend* page 15



Arethusa Barn.

Photos by William Cain

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LOCAL FOODS & MARKETING

Sell It!

Tips to sell out at every farmers market

by Miriah Reynolds

Farmers Markets compromise almost every Saturday of the year for our family at The Reynolds Barn. Friday night before the market consists of usual milking chores and farm duties, plus goat milk soap and cheese making, and checking off the list for the morning. Once the trucks are loaded and the sun rises Saturday morning, we divide and conquer. On a typical market morning we attend two to three markets, and occasionally another in the afternoon. How do we do it? Here are a few tips to make your farmers markets successful.

Conversations with Customers

Selling a product takes more than just sitting on a cooler behind the table and waiting for customers to take interest. Stand up and greet everyone. I have learned to always ask an opened ended question that



The Reynolds Barn Goat Milk Soap.
Photo by Melody Reynolds

requires a response from the customer. An example would be: "Good Morning! Would you like to sample some fresh goat cheese?" The customer will either come up to the table and try some, simply say no, or give an excuse of how they don't like goat cheese. As the farmer's daughter, I don't take no for an answer. Most of my regular customers thank me every week for convincing them a year ago to sample the cheese. So when customers respond with no, I always ask them why. (The reason I most often hear is because they do not care for stinky goat cheese.) Here is where describing your product and the process used to make it will win over your customers. Give full explanations and a guarantee that they will like it. And nine times out of ten they will!

Go the Extra Mile

The next step in making farmers markets successful is to stand out from other vendors. At the markets I attend the most popular tent color is white, so I got a red tent. Make signs simple and legible with text big enough to get the customer's attention easily. Find ways to give your customers a visual connection to where your products came from. A chalkboard adorned with cutout goats displays my product pricings. I bring a couple of baby goats to every outdoor summer market I attend. This draws in the children, which in turn reels in their parents. While the kids are occupied with the goats, their parents purchase more products. If you can, demonstrate some of your daily work. Occasionally, I will hold goat milking demon-



Miriah and Melody Reynolds at a farmers market.

Photo by Don Reynolds

strations to enlighten customers as to what life is like on the farm. This always brings in a large crowd of new customers.

Remember, almost all the people coming to the farmers market want to support their local farmers and buy wholesome products. Be there for your customers and be pre-

pared to sell out!

Miriah Reynolds is part of the Reynolds Family who attends farmers markets in RI with their goat milk products. Miriah has recently moved to Montana to start school in a pre-vet program. She can be reached at iminthegoatbarn@cox.net.

Bookend from page 14

Empire. This internship exposed me to "Curtin work ethics" and how hard work and smart work go hand in hand. Work ethic, I quickly realized, is in this family's DNA and bonds together the 50 plus employees who comprise the "professional" Curtin family.

Manager Mr. Dennis Yousey, who coincidentally judged my 4-H Show in Connecticut years earlier, met me on my first day and really made me feel at home. After working at Arethusa's 80 cow milking herd, 3,300 cows seemed a bit overwhelming. He introduced me to Greg, a Cornell Ag School graduate, who is a herdsman and seems to know more about bovine health than a room full of PhDs. I was assigned to work with Greg and my station was working with sick cows. On my second day on the job, I was issued an "official" Curtin jump suit and realized immediately that real dairy farming is indeed a dirty job! My mom said these coveralls were the only item in the washer and still needed a double cycle.

The Curtin Dairy, I was soon to learn, is all about three business principles I hope I remember for life. First, respect for the dignity of work and those who do it, starting from the bottom up. Curtin Dairy employs about 50 people, all who depend on the farm's success for their family livelihood. The bulk of employees all seem to have worked there more than 10 years and expect to stay there until retirement. Everybody seemed to think like "owners" and not employees when it came to getting tasks done. This was my first exposure to the terminology referred to as "corporate culture."

The second business principle of upholding safety and maintenance standards was never compromised. Farming can be a dangerous business and safety requires work procedures that minimize risk and exposure to accidents. Curtin prides itself in making safety a way to work and demands that everyone practice principles that maintain healthy employees. Hard work is very different than dangerous work. I felt like "a kid in a candy store" looking at all the Curtin's equipment and implements. Large scale dairy production requires major investments

in labor-saving equipment and modern means of production. Maintaining this vast array of equipment was at least as important to operations as cow care and production.

Lastly, but most important, the Curtins really understand the business side of farming. Computer and advanced analytics, from crop production to milk production, drive operations. What takes place in the "front office" drives coordination and integration of every aspect of the enterprise, adjusted for seasonalities and the constant flow of new state

and federal regulations. Checking commodity prices ranks second only to the constant inquiries into weather and rain patterns.

Running a highly automated production operation like a dairy farm, however, does not mean there is no personality to keep things loose and spirits high. Jack Curtin, the primo boss, could compete with any talk show host, especially if you like dry humor and a sense of Irish wit! I quickly learned that how you say things is sometimes more relevant than the words themselves.



Arethusa Cows.

If farming is a way of life, I experienced two extremes. Arethusa is filled with ribbons and awards and is changing the genetics of our dairy genes for generations to come. Today, million dollar cow genetics are limited to very few competing farms geographically spread across the country. In future generations, those same genetics will be mainstream and define the competitiveness of commercial dairy farms on a local level. For the moment, Curtin Farm and other highly efficient operations give New York state the hope of retaining big customers of dairy products, such as yogurt plants, which depend on high quality, stable costs and predictable supplies. Sometimes the best way to learn is by leaving the comforts of home and seeing the world through wider lenses. Arethusa and Curtin Dairy are like night and day, but in the end they are both dairy farms.

William Cain is a high school student from Cornwall, CT that lives on a Black Angus farm, but is very interested in dairy farming. He can be reached by email at billy-cowtruck@yahoo.com.

NEW AND BEGINNING FARMERS

New Campus Farm — Fruits of Labor

Organic, student-run farm is born at Richard Stockton College

by Dan Moscovici

insurmountable, but things are working!

An Open Letter to Aspiring School Farmers:

This season, for the first time, the farm at the Richard Stockton College of New Jersey is in production. Cat (short for Caitlin) finds herself the newly anointed manager of this student-run farm. Her advice: if you want to start a farm at your school, do it! The challenges may seem paramount but with creative solutions, the fruit of labor is worth it. Aspiring school farmers are encouraged to keep these things in mind.

1. Be Aware of Your Surroundings.

Our farm, as well as our entire college, is located within the Pinelands National Reserve. The Reserve, born in 1978, enacted a regional plan blending participation from federal, state, and local jurisdictions to guide development and protect natural resources. Therefore, the farm has an extra set of rules from the Pinelands Commission, the regional managing body. If they say the farm cannot compost in contact with the ground and must contain all leachate, the rules must be followed — a 17 trillion gallon aquifer is at stake. This particular guideline put student problem-solving skills to the test. One option was to convert 55-gallon drums into tumblers or otherwise use a discarded hot tub, but someone would have to climb in and regularly turn the compost. The decision fell to a third option — a few large bins that lay dormant from an old student project. They were perfect because they were already on campus and were free, important themes for all campus farms.

2. Choose the Path of Least Resistance.

There is no water at the farm. There is no well nor an electric hookup. The farm site is on distant portion of Stockton's 2,000 acre campus, far from the main buildings. So, a creative solution was needed. We designed a drip irrigation system, which is entirely gravity-fed and supplied by rainwater. Students constructed the pole barn (the roof of which collects water), built the water tower, and installed the plumbing. A solar panel was added, necessary to power the pump that pushes the water to the top of the tower. Drip irrigation is not conventionally used in this part of the world, due to generally abundant surface and groundwater, but it is enough for now. The challenges seemed

3. Accept What You Can't Change.

Working within a state college, or really any institute of higher learning, tends to slow things down. Permissions and purchases are going to get tied up in paperwork, need three different signatures, and often require a reimbursement. A small example: the farm's first spring seed order never came in. The order was held up in the purchasing department, where they were unaware of the time sensitivity of receiving the seeds in time to plant, and the new student farmers were unaware of how long it would take to add a new vendor to the computer system.

4. Use Your Expertise (learned and local).

It's okay if you don't know how to farm, you can learn. There are innumerable resources available to you — books, extension agencies, gardening volunteer groups, local farmers, professors, websites and more. However, stay focused; you can immerse yourself in writings and advice forums, but you still have to get dirty! Just keep learning and having fun. Cat and helpers relied on professors, other farmers in the area, extension agents, and their own internet research. The list of resources will certainly grow along with the farm.

5. They Come and They Inevitably Go.

Where did all of the students who started the farm go? The proposal took many months, meetings, follow ups, and a measure of resolve to work with the system, just to get approval for this project. Those students who did get the farm running are now working on other projects or have graduated, while the next wave of student farmers have taken on the daily business of pulling weeds and crushing bugs on our organic farm.

Furthermore, you may encounter many willing volunteers at first — students may quickly lose interest once they realize that farming happens in the heat of summer. It can be sweaty, dirty, uncomfortable and repetitive work — luckily the beach is just down the road. Nevertheless, on a college campus you are bound to find people who are willing to work hard for the satisfaction of knowing exactly where their food is coming from and making it available to a community of peers.

Making sustainable local produce available



Class lab planting garlic.

Photo by Dan Moscovici

to your community will have many benefits. It will begin a conversation about food — its origins, its quality, and its environmental costs. This discussion is contagious and soon others will want to participate. By starting a farm one is capable of raising awareness, motivating people, and changing practices. From farms to individuals, from colleges to communities, we can discover and create a better way to eat.

Caitlin (Cat) Clarke is the Farm Manager at Richard Stockton College of New Jersey and a senior Environmental Science Major. She can be contacted at clarke66@go.stockton.edu.

Dan Moscovici is an assistant professor of Environmental Studies and Sustainability at Richard Stockton College and can be reached at daniel.moscovici@stockton.edu.



First crops: Burgundy okra.



Solar rainwater/irrigation catchment system.

Photos by Cat Clarke

Beginning Farmer Resources

- Northeast Beginning Farmers Project. Watch production videos and interviews with farmers, work through planning tutorials, find local people to help, and much more at <http://nebeginningfarmers.org>
- Local Help. It's always best to first ask questions to your local small farm agent since they are familiar with local zoning issues and regulations for your county. You can find your local Small Farms Cooperative Extension Agent by checking the county-by-county listing at <http://smallfarms.cornell.edu/contact/local-contacts/>
- Financing/Grants/Loans. Everyone is looking for funding to help build and grow their small farm. We've created a section on the Small Farms Program website to feature a library of funding opportunities. Visit <http://smallfarms.cornell.edu/resources/funding/>
- Learn from the example of another student-run farm: Dilmun Hill at Cornell University! <http://cuaes.cornell.edu/ag-operations/dilmun-hill/>

LIVESTOCK & POULTRY**The First-Year Egg Farmer**

Molly DellaRoman manages a pasture-based flock of 300 laying hens alongside a sizable vegetable CSA, a farm stand, and a regular supply of farm visitors...and this is only year one

by Sam Anderson

Molly DellaRoman is the Farm Manager of Moose Hill Farm in Sharon, MA, located on land preserved as an open space and historical site by the Trustees of Reservations. When she was hired earlier this year, Molly was given the task of bringing agriculture back to this onetime dairy farm. She jumped in feet first, raising laying hens and growing CSA vegetables. Molly spoke with Small Farm Quarterly about the challenges and rewards of starting a pastured poultry enterprise on a diversified farm. This first-year egg farmer's musings are relevant to aspiring or experienced, large or small-scale farmers alike.

SFQ: So far, do you feel more like a vegetable farmer with chickens or a chicken farmer with vegetables?

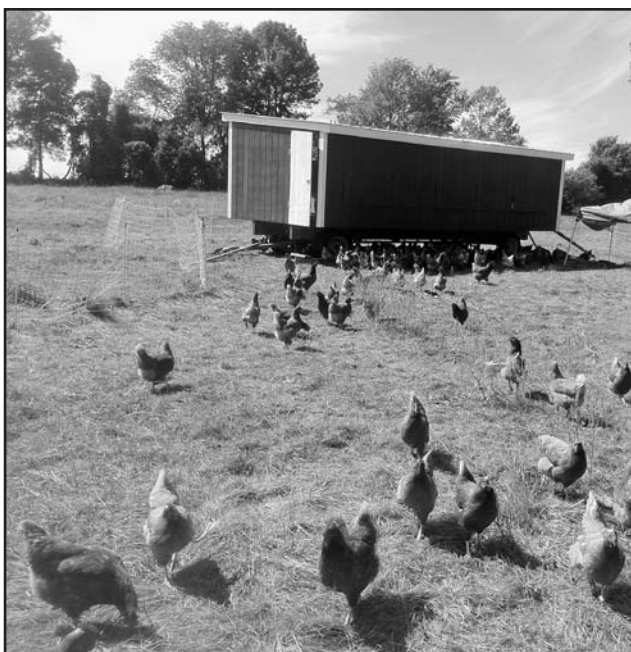
DellaRoman: Well, it can depend on the day. I think mostly I feel like a vegetable farmer with chickens. Honestly, some days the chickens should get more attention than they do, but we're still working on that balance.

SFQ: Can you say a little bit about how the chickens and veggies complement each other, or how you're hoping they will complement each other?

DellaRoman: Right now, the chickens get leftover vegetable scraps, which is amazing for them. They absolutely love that. My hope is that the chickens will do work for us. There are some fields that we're going to plow up this fall and put into vegetables next year, and I would really like to get the chickens on those fields before we plow and have them get the grass down, scratch it up, and fertilize it.

SFQ: You jumped right in this year with 300 plus layers. What would you tell someone who is thinking about doing that?

DellaRoman: The biggest flock I had worked with before was 100 hens, which didn't feel all that overwhelming. But having run the numbers for 300 chickens, it makes me realize those hundred chickens probably weren't adding much to the financial side of the farm. There is more work between 100 and 300, but your financial return increases more than the additional work you put into it. Still, 300 hens is probably too small. Honestly, if you're going to do it, I think you should go



Chickens roam around the Moose Hill eggmobile.

Photo by Sam Anderson

big. If you've never worked with chickens at all, maybe you should have a small flock just to see if you even like doing it; but if you want to make it work as a business and you're going to put in all that startup cost — which isn't going to be very different between 100 or 300 or even 500 chickens — to offset those startup costs, I feel like you can really go for it.

SFQ: What are some challenges you came across this year that you have already fixed?

DellaRoman: Well, using apple cider vinegar was an amazing fix for the health of the chickens. We put a cup and a half into each five gallons of the chickens' water. When a lot of the birds got sick early on after a rainy week, I thought we were going to have to use antibiotics, which was going to be a big problem since we wouldn't have been able to sell any of their eggs during that time. But we learned about the apple cider vinegar trick from Pat McNiff (of Pat's Pastured, Rhode Island) and it worked really well, so we haven't had to use antibiotics.

There were a few rookie mistakes we made, even just on

egg collection...I was so focused on getting these birds in the spring, I didn't really think enough about how we were going to handle all of the eggs. But there are things you can buy in the poultry catalogs that can help you, and those were definitely worth the money. At first I felt like I was buying in a lot of infrastructure, but you realize that it really is important to have egg collection baskets instead of five gallon buckets, and you really do need egg tray organizers in your fridge because you can't always wash eggs right away, especially if you're also vegetable farming. Now we have our system, and handling the flow of eggs is not a big deal.

SFQ: What are some of the challenges you're still dealing with?

DellaRoman: Looking forward, I think a big challenge will be pasture management, working on what's actually growing in the field. That was another one of those afterthoughts—I thought, "Here's this field, it's four acres, that's plenty of space for the chickens." But we could be maximizing what's growing in that field to get them off grain even more and really make it useful for them to be out there eating that pasture. That's brand new to me. I've taken care of lots of chickens before that were "pastured," but they weren't moving around a big field, they were mostly on dirt and eating mainly grain and some veggie scraps. Now I'd really like to learn how to make it work—whether it's getting the chickens to eat new stuff or getting rid of invasive weeds in the field. That's what I see as my big challenge for next year.

SFQ: Did you have a moment this year that you realized, "Wow, this is going OK?"

DellaRoman: We had an open house in April. We'd probably had the chickens for about a month at that point, and the chickens were on my mind all the time. It was like having 300 kids. But we invited the public that day, we turned off the fence and let the kids hold the chickens, we explained what we were doing...and things had felt kind of chaotic, but I realized, "We really do have a system in place." We were already starting to sell eggs at that point, and it was the first farm product to come off of that farm in decades. After that first month I think we realized: We are actually in control. Because the chickens can run you. They can.

SFQ: What's your favorite part of having chickens?

DellaRoman: Well, they're endless entertainment. They really are goofy to watch. One of my favorite moments, though I curse the chickens every night having to lock them in, is that time when I'm the only one left on the farm. There was a night in early June when I was just drudging along, shutting all the doors, making sure the fence was turned on, and I saw that the whole chicken field was filled with fireflies. The last few straggler chickens were walking in, and I realized that the chickens are here, they're part of this little ecosystem. And they have a pretty great life.

Sam Anderson is the Livestock Program Outreach Coordinator for the New Entry Sustainable Farming Project. He can be reached at sanderson@comteam.org.



Resting on the coop.

Photo by Tom Kates



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STEWARDSHIP & NATURE

Wetland Restoration: “What Do You Want to Do That For?”

Enhancing wetland areas on your farm can bring a whole new community of wildlife to your land

by Troy Bishopp

The title in layman's terms is really pronounced, “*Whatta ya wanna do that for?*” driving my spellcheck into utter meltdown. It's a common phrase used by folks who don't understand a decision, idea or action. It's exactly what farmers (and even my own family!) say when I bring up the idea of adding or restoring wetland complexes on farmland.

In retrospect, I was a critic of wetland restoration initially too, but converted as I discovered the benefits of adding more diversity to the farm. As with anything, I've also been influenced by my learning environment. I believe my interest started with my Grandpa Steele's love for the Nine Mile Swamp and picked up steam as I read chapters from Louis Bromfield's *Malabar Farm*, which vividly describes the majestic ponds and wetlands that fed many people's appetites for fish, watercress and fresh mint.

Since gaining perspective from Holistic Management principles and working with the Upper Susquehanna Coalition's (USC) water quality team of wetland, stream and Ag professionals, I now see first-hand the advantages to adding wetlands back into the equation, one being the ability to regenerate the water cycle for my downstream neighbors. While this sounds like a glowing endorsement, my main motivations for adding shallow emergent marshes to my organic grazing operation were born out of the holistic goal to “to create a savannah for wildlife” (and I suppose selfish desire — because I just wanted to).

My thought process in pursuing this conservation measure in 2012 went something like this: Is my fenced off area a good site? Who will help me plan and implement this vision? How do I draw the species I want to the habitat? Am I planting trees? How does it function during the seasons? Are there maintenance requirements? Can I graze it? What will it cost? And what will it look like when my grandchildren romp around in it?

I embarked on this wetland journey away from your tra-

ditional governmental conservation programs and payments, choosing instead to freelance with the Upper Susquehanna Coalition Wetland Team comprised of Wetland Coordinator Melissa Yearick, Wetland Biologist and Planner Patrick Raney, and Watershed Coordinator/wetland expert extraordinaire Jim Curatolo. This hands-on process helped me understand the goals, nuances, and challenges of implementing a wetland plan.

I have to say they were a patient bunch as I argued for open water, upland features, adjusting the stream corridor, and the tree and plant species I wanted to incorporate. I equated the process to working with a home landscape designer who would, through computer generation, give me an exact picture of what the final landscape would look like. Wetland planning doesn't

exactly fit this model. As with any planning process, there will be compromises! I found out rather quickly that if land is already exhibiting wetland characteristics before restoration begins, there are certain federal regulations that must be considered. Please check in your local area before starting any project, big or small.

It was no problem adding plant and tree species to enhance my existing wetland area; however part of my grazing paddock inhibited some of the wetland expansion I hoped for. I had a dilemma: grass or marsh? When you start talking about taking pasture away from “The Grass Whisperer,” there will be a work stoppage and much more discussion! I was frustrated by this obstacle, but after some thought, feature changes, and flagging out the proposed project, we were only disturbing about

a tenth of an acre.

As it just so happened, the big dig occurred on my birthday, June 22, (which is a present that will keep on giving). Before I left for work I could tell by the expression on the face of Bill, my local excavator wizard, that he

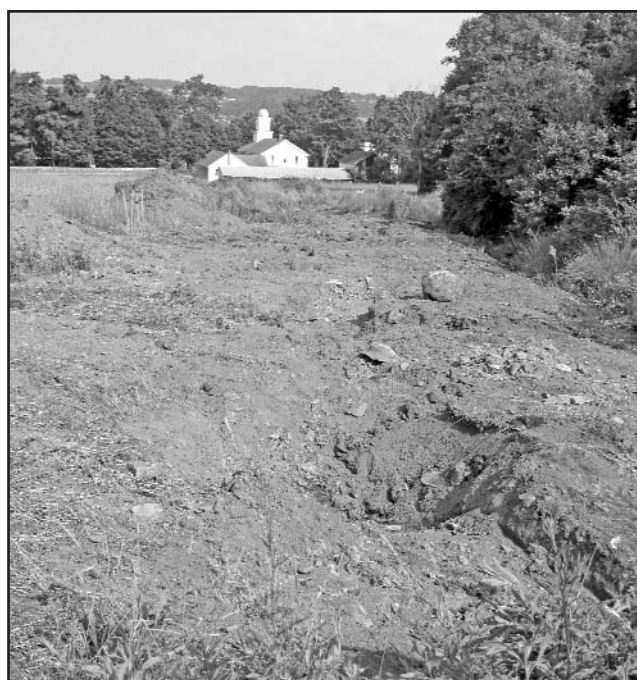
had some trepidation taking orders from the young biologist, Patrick, who wielded a rough drawing, tree spade, and pocket full of wetland seeds and spores. His mixtures included: Purple avens, Shrubby cinquefoil, Great Blue lobelia, Yellow sedge, Ostrich fern, Golden



See Wetland page 19



Wetland site on edge of paddock.



Site after excavation.



Site by fall of 2012.



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Photos by Troy Bishopp

Wetland from page 18

ragwort, Harlequin Blueflag and Cinnamon fern. When I arrived home that evening to a series of dry holes (since we had severe drought in 2012) and excavated topsoil, I remember thinking, "I hope these wetlanders know what they're

doing."

I checked the site every day after the ground was broken, and over time with rain and Frankenstorm Sandy, the pools filled in nicely, as did the vegetation with Patrick's complimentary placement of

old tree trunks and built up tussocks. Now in 2013, a year has passed since the wetland father, Mr. Curatolo, asked me to keep the faith in his idea: "Build it right and the species will just show up," he advised. I trusted his premonition because as a grazier if you build a good functioning grass farm, ben-

eficial flora and fauna also just show up.

The days of reckoning on this decision to add a wetland complex came to me in two very different environments. As I watched spring around this year, I saw a pair of mallards using the little pools. I witnessed deer

frequenting the area and bedding down. And with profound enjoyment, I finally have polliwogs, frogs, salamanders, a blue heron, and several species of plants with brilliant color and diversity.

Probably the more significant purpose of a wetland is

to slow down and retain flood waters which unfortunately impacted our area in June and July with over 15 inches of rain. My project and associated upstream native wetland, coupled with our good grass cover, performed admirably and surely saved soil and road culvert blow-outs. When Oneida County Cornell Cooperative Extension surveyed me about damage on the farm from flooding, I proudly replied we had no significant damage other than debris caught in fences and silt nourishing our grasslands. I feel with this crazy weather the systems approach, which includes permanent cover, forests, hedgerows, riparian areas and a robust cadre of livestock, wildlife and soil biology is a sustainable strategy for the future.

My intent here is to stimulate conversation and consideration for adding or enhancing some type of wetland complex on the farm, be it a vernal pool, marsh or fen. The price to build such a nature-friendly practice — just \$800 in my case — is far outweighed by soil and water retention, insect eating capacity, species diversity and picture-taking opportunities.

So the next time someone asks you, "What do you want to build a wetland for?" you can share my story or call the professionals at the Upper Susquehanna Coalition. Hey, who knows, if you have a really good spot, the wetland team might even build it for free!

For more information about the Upper Susquehanna Coalition call them at 607-687-3553 or visit their website at www.u-s-c.org.

Troy Bishopp, aka The Grass Whisperer, manages Bishopp Family Farm's custom grazing operation and is a Grazing Professional for the Madison Co. SWCD/The Upper Susquehanna Coalition. He can be reached at 315-824-9849 or troy-bishopp@verizon.net.

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LIVESTOCK & POULTRY**Electric Nettings for Sheep: Useful Tips**

by Ulf Kintzel

I wrote a previous article which appeared in the Fall 2007 issue of Small Farm Quarterly which covered basic information about electric nettings – what they are, what variations there are, what to use them for. I will not address these details in this article in order to focus on a few useful tips that I have learned over the years. This article assumes you have some knowledge of and experience with electric nettings. For a more detailed description of what they are, please refer to the 2007 article posted at <http://www.whitecloversheepfarm.com/prl-articles/SFQelectricNettings.pdf>

Electric nettings, or “nettings” in short, for sheep are tremendously successful in many parts of Europe. It appears to me that they are not nearly as much in use in the U.S. as they are overseas. During my shearing days I met many who had tried and then discontinued using them. There seems to be two main reasons for not using them: sloppy way of putting them up and not enough electricity to keep the sheep in.

A sloppy way of erecting the nettings can lead to sheep escaping or worse, the nettings becoming a death trap for sheep getting stuck and then electrocuted. Erecting a nice straight line of a tight fence may take a matter of years, but straight is not needed to be functional, tight and stretched is. When I put up nettings, I hold the roll of nettings in one hand, take a post and step it in, and then move on to the next spot for the next post. This method takes some experience. It may be easier to lay out the entire fence, stretch it, and then erect the fence. You will walk twice as much but perhaps you may not get as frustrated with fence posts tangled up in the netting and/or a fence line as crooked as can be.

I strongly recommend double-spiked posts over single-spike posts because the double spike allows you to step the post in. If you have been frustrated with electric nettings and you have single-spiked posts, you may already have solved one source of your frustration. Electric nettings also come in different heights. I find 35 inches sufficient for my medium-sized sheep which are fairly calm. Nettings that are 40 inches high or even higher do not serve a purpose for me in everyday life. The downside with these higher nettings is the difficulty to erect them and keep them erected.

When fencing in a somewhat rectangular grazing cell, the corners becomes a weak part. Here is where the fence is likely to sag or the posts likely to collapse if the ground is soft. There are various ways to put tension on the corner. The easiest way for me is using a tent stake, preferably made from steel, with a bale string attached to it and a loop at the other end of same bale string. That bale string gets looped around the middle of the fence post at the corner and



A short section of netting to fill a small gap. Please also note the track to put up the nettings.

then the loop of the string is put over the top of the post. The string gets tightened and the spike is put into the ground as shown in the picture.

Each of my 35-inch high netting has eight horizontal strands of which seven are conductive. Each strand is not a single wire but there are multiple thin wires wrapped around a plastic strand. That means that less than five nettings equal a mile of single-strand electric fence. In fact, it can be argued that even fewer nettings equal one mile of single strand electric fence since multiple thin wires are wrapped around each plastic strand. Since many underestimate how much “mileage” you get with just a few nettings they also tend to under-power electric nettings. So even with just a few electric nettings I would recommend looking at energizers with no less than two and a half Joules. A few dozen nettings will require energizers with five or six Joules and up.

As the grass grows tall in late spring and early summer, erecting the nettings becomes more difficult for two reasons. First, in many places the netting does not go low enough. It is elevated by the grass and it leaves room for lambs to escape. Secondly, the tall grass touches hot wires in many places and drains away a substantial amount of electricity, especially when it is wet. I solve this problem by making a track with the truck beforehand, which also helps in keeping a straight line. If there are too many seed stems I use the bush hog to mow a path.

Standard electric netting comes in 50 meter (164 feet) length. When you are almost done putting them up you are often left

with a small section of perhaps 20 yards or 12 or even only five. It is rather cumbersome to put up an entire netting for that section of smaller size, letting two nettings overlap. Shorter nettings of 25 meters (82 feet) are sold as well but cost far more per foot than standard nettings. I solved the problem by cutting out smaller sections from older nettings that were in part broken, ending up with nettings of all kinds of lengths. I just have to add a post and a connecting vertical conductive wire at the end, using strands from the repair kit that comes with the purchase of each netting.

Over time many bottom strings will break, especially since mice or ground hogs like to chew through them and they get caught time and again when erecting nettings. These broken sections will need to be repaired when they get too manifold in order to ensure that there are no lambs escaping by pushing underneath the fence. I tie the one end of the repair string to where it broke on one side and pull it tight on the other end, assuring that I end up with about the same length of string as before (see photo). Then I make a knot and cut off the remaining string. Vertical strings break too but I rarely fix those. The nettings remain quite functional even with a few vertical strings broken.

I use spare posts salvaged from old nettings over the years to lift wire off the ground in uneven terrain. Nettings with vertical struts prevent this from happening altogether. Yet, I prefer nettings with vertical strings since these are easier to erect and more importantly, easier to roll up. Nettings with struts are okay as long as these struts are all intact. However, once they start breaking they get caught every which way and tangle the netting up when you work with them. Spare posts work just as well for the occasional hot wire touching the ground (see photo). Likewise, the netting may go over a ditch, exposing an escape route for lambs or an entrance hole for predators like coyotes. Again, spare posts can be used to pin down the lowest, non-conductive string or a branch can be pushed through. Its weight will lower the netting without shortening the fence out.

Electric nettings are in my view the next best thing after permanent woven wire fences. Erecting them and keeping them functional can be a challenge. I hope this article has helped a little to master these challenges.

Ulf Kintzel is a native of Germany. He lives in the Finger Lakes area in upstate New York. Ulf owns and operates White Clover Sheep Farm. He breeds and raises grass-fed White Dorper Sheep without any grain feeding. His website address is www.whitecloversheepfarm.com. He can be reached by e-mail at ulf@whitecloversheepfarm.com or by phone at 585-554-3313.



The corner spike and its use.



The white post is added to elevate netting and keep the lowest conductive strand off the ground.

Photos by Ulf Kintzel

LIVESTOCK & POULTRY**Pigging Out****American Guinea Hogs: A heritage breed well-suited to small farms**

by Ada Kerman

At Phoenix Farm, a small, family-run homestead, we had the opportunity to get a breeding pair of American Guinea Hogs through a pass-on program in the fall of 2010. Over the last three years, our experience with American Guinea Hog (AGH) pigs has convinced us that they are well suited to small, homestead-style farms like ours.

What Are American Guinea Hogs?

American Guinea Hogs are an endangered breed of farm animal. In 2005 when a group of AGH-loving farmers founded the American Guinea Hog Association (AGHA) to preserve and promote the hog, they were only able to locate a few hundred AGHs. Today, there are around 1200 registered with the AGHA. Guinea hogs tend to be small; an adult boar will not exceed 350 pounds. Our older boar does not stand as high as my knee. AGHs tend to be friendly and in most cases can be moved from one part of the farm to another or to a vehicle for transport simply by leading them with a scoop of grain. Because sows do not get too large, there is little risk of overlaying, which is when a sow squashes her piglets to death.

These traits – small, friendly, good mothers – are some of the reasons I recommend AGHs for small farms. It's nice to have a pig that is easy to handle, rather than a 1000-pound animal from one of the modern breeds. Pigs are also well-suited for land management as they are good at clearing and fertilizing brushy ground.

What Kind of Care Do They Need?

As discussed above, protecting piglets in the farrowing pen does not require as much attention as you will see in the literature. One of our farrowing pens has a 2x4 running around the wall near the base, providing a small cranny piglets can nestle into if they want to get away from their mother. We also have an attached creep with access spaces large enough for piglets but too small for the mother. In spring through fall, pigs are out on pasture with three-sided shelters. We put ours on skids so we can pull the skids around with a pickup or tractor.

Elysa Bryant of Stonewell Homestead in Gilford, CT, houses her AGHs in the largest animal crates she can find or in cattle panels to encourage the pigs to make their own nests.

**American Guinea Hog sow nursing piglets**

Photo by Ada Kerman

"My gilts haven't done that yet," she said, "but I always try to put them in places where they have the opportunity. Invariably when we've given them two large crates, they always prefer to be together even if space is cramped."

On Phoenix Farm, we give our pigs a combination of pig grain and food scraps, and also have them out on pasture where they can graze and root for as much of the year as possible. At one point, I calculated that I was feeding our yearling pigs 10 ounces of grain each, twice a day; though when we have high-protein food scraps such as yogurt or eggs this amount can be reduced significantly.

Because it is easy to overfeed hogs when using grain, it is important to keep a close eye on their girth. A hog of good weight will have some definition in front of the hips but will not, as my sister Hannah Kerman said, "look like a coffee table when viewed from above." If you catch it early, reducing the volume of feed a pig receives will get them back to a good weight; like humans if they are considerably overweight for a long time it is harder to slim down.

At Stonewall Homestead, Elysa amended her feeding system over time. "When we first got the pigs," she recalled, "we fed them grain and restaurant food scraps twice a day based on the breeder's recommendations."

AGHs are known to be good rooting pigs but at this rate of feeding, Elysa's were not. "When we couldn't get restaurant scraps any more, they got grain and our own compost," she

said. "Then they started to root a lot more. You start to realize that by handing them food, you aren't allowing them to go out and select their own. Now I take care not to overfeed them grain because I want them to keep rooting."

Potential Challenges

When I asked Elysa what she wished she had known before getting her pigs, her answer was about "the transportation aspect of getting them bred. You really have to have the connection to someone with equipment, a truck or something." Her gilts are welcome to breed here at Phoenix Farm, but lack of transportation has prevented it to date.

Farmers wanting to raise market pigs should consider that AGHs are relatively small, slow-growing animals. We breed our pigs for their meat and their land management and improvement services. The AGHs that we slaughter after one year typically dress out to about 60 pounds hanging weight, and the ones that we quarter at 6 months yield 40 pounds of quarters. For this reason, our best potential market is well-to-do foodies who are willing to pay extra for local heritage meat, and chefs who may market to similar customers. AGH meat is comparable or superior in taste to the trendy Mangalitsa pork, so this marketing strategy seems plausible.

How Do Pigs Fit Into the Farm as a Whole?

AGHs are skilled at land clearing as we learned right away at Phoenix Farm. We first housed our pigs in a barn that was full of blackberry brambles. In the spring when the snow melted they really went to town and by summer had cleared the area. Looking to the future, we plan to use them to thin the underbrush in a woodlot we are converting to silvopasture.

When our pigs are rotating around pasture, we sow plants – turnips, squash, beets, etc. – in an area right after we move the pigs out. The plan is to rotate the pigs back around when the crops are ready and allow the pigs to harvest their own food. Because their rooting leaves the ground very uneven, they are kept out of hay pastures.

Similarly, Elysa used her pigs to help clear a wooded pasture area of troublesome poison ivy and poison oak. In addition to pigs, her pasture rotation also includes goats, laying hens, and chickens. Elysa sends the animals into pasture in a particular order.

"Our rotation," she said, "is to send the goats in first, then the pigs, then the chickens. The goats veer off into another area and do brush control, then the pigs and chickens stay together for a while."

From niche market meat production to pasture management services, there are many benefits to raising American Guinea Hogs. Their friendly nature and small size are a good match for a small farm.

Ada Kerman is a partner of Phoenix Farm in Marlborough, NH. She can be reached at info@phoenixfarm.org or (603) 876-4562.

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Resources:

- American Guinea Hog Group on Facebook <https://www.facebook.com/groups/317519622349/> Please request membership from the moderator, who responds promptly. Great for AGH owners and those who are interested. Discussion is very active.
- American Guinea Hog Association <http://guineahogs.org/> Maintains breed registry and list of breeders with pigs available for sale.
- Sullbar Farms, The Northeast's First AGH Breeding Farm <http://sullbarfarm.com/guineahogs/whatisaguineahog.html>

NORTHEAST SARE SPOTLIGHT**Watch Out Diesel: There's a New Fuel in Town***Dave Dolan of Flying Rabbit Farm creates syngas out of locally produced grass pellets*

Welcome to the Northeast SARE Spotlight! SARE (Sustainable Agriculture Research and Education) offers grants to farmers, educators, universities and communities that are working to make agriculture more sustainable — economically, environmentally, and socially. Learn about whether a SARE grant would be a good fit for you.

by Rachel Whiteheart

"VRRRRRRRRMMM..." As the engine on Dave Dolan's tractor sputtered to life, I stood by, watching him scurry around the machine, turning knobs and flicking switches. Puffs of smoke emerged from the complex fueling system handcrafted for this tractor, which isn't powered by conventional fuel; it's powered by grass.

Dave Dolan, owner of Flying Rabbit Farm (a small, family-run farm in Otego, NY) has always been a proponent of utilizing alternative fuel sources. A few years ago, Dolan pursued his first SARE grant, attempting to create a flame weeder powered by waste vegetable oil (see the SARE column in SFQ Fall 2010). For the past four years, Dolan has been using a biofuel-powered boiler to heat his home, experimenting with a wide range of fuels, from wood chips to rye seeds (which he refers to as "God-made pellets" due to their size and shape), in order to determine the most fuel-efficient form of biomass.

The SARE Project

For Dolan's most recent SARE-funded farmer grant, he explored the feasibility of transforming grass pellets into a usable fuel that could power his farm equipment, a topic on which he could find little prior research. His inspiration came from the arrival of a grass pellet manufacturing facility, EnviroEnergy LLC, just four miles up the road from his family's farm. This source of grass pellets right in his backyard was the perfect motivation because it allowed him to explore using a truly local, renewable resource.

Dolan, with the aid of his son and his nephew, soon set to work engineering a gasifier that could chemically transform grass pellets into another type of fuel called syngas, which is essentially just a gas form of any hydrocarbon fuel (coal, oil, etc.).

The building of the gasifier was a family affair; Dave Dolan and his son were joined by Dolan's nephew, a chemistry major (Dolan's wife stayed out of it due to, in Dolan's words, "a fear that [they] were going to blow [themselves] up"). Dolan's nephew helped ensure that the chemical and ther-

modynamic logistics (pressure, temperature, and volume of each chamber, gas compositions, etc.) were properly accounted for in the design of the gasifier. Dolan also turned to the Internet for further design tips.

Once Dolan had decided upon a general design for the machine, the entire Dolan clan set to work building the gasifier. After a grueling design process consisting of 15 different prototypes, they had their final product. The resultant gasifier consisted of a series of metal barrels (the purpose of which will be described later), each one sealed to create a pressurized environment. Each metal barrel is connected to the next via a series of tubes that allow the syngas to flow throughout the apparatus.

Results

I was lucky enough to venture out to Flying Rabbit Farm and see this device in action. As I pushed thoughts of exploding tractors out of my mind, Dolan poured two medium-sized buckets worth of grass pellets into the gasifier, an amount of fuel that can produce gas for up to four hours. He then sealed up the system, igniting a fire in the tank and commencing the gasification. The grass pellets burned in the first tank, giving off a very crude syngas that passed through a series of filters and barrels, each one purifying the gas more. This is so that it can run more smoothly through the engine, although Dolan lamented that "the syngas still contains a little tar which can clog [it] up."

When the temperature in the first tank had reached 650 degrees C (the temperature at which the gasifier starts to produce the purest form of syngas), Dolan sprinted along to the far side of the tractor, firing up the 3-cylinder diesel engine on his tractor. We all waited with anticipation until we heard a quick sputter of the engine, signaling that the syngas was working. Dolan has attempted to use his gasifier to power other machines on his farm, but as of now, the only machine it powers efficiently enough is his diesel-fueled tractor. In addition to using the pellets to make syngas, he has also started burning them in the biomass boiler that powers his home. He says grass pellets burn a little less cleanly than other biofuels that he has used in the past, but the ash that results as a consequence of burning can be



Biochar is a by-product of the gasifying process and can be used as a soil amendment to enhance crop growth.

used as a fertilizer which acts very similarly to lime.

The gasifier also produces the useful byproduct biochar. Dolan has been using biochar, which is essentially charcoal, on his crops as a soil amendment. In a series of experiments Dolan conducted in his greenhouse, he determined that a mixture of 90 percent potting soil and 10 percent biochar enhances the health of his crops more than un-amended potting soil would. And as if healthier crops weren't enough of a benefit, by returning the biochar back to the earth, Dolan further diminishes the environmental footprint of this fuel source.

Dolan's device is still too cumbersome to be attached to a portable tractor, so he's not sure whether it would be feasible for other small farmers in the area to develop any sort of similar apparatus. But for now, Dolan has determined that turning grass pellets into syngas is possible, even if you don't have access to extensive amounts of technology. Dolan is grateful to SARE for providing the support that he and other entrepreneurial farmers need because, as he says "the creative genius residing in farm shops across the countryside is immense."

If you'd like to see the gasifier in action, view the YouTube video that Dave Dolan created at www.youtube.com/watch?v=CmA22wn2VNM.

This article discusses SARE project number FNE11-713. Download the full final report at <http://mysare.sare.org/mySARE/ProjectReport.aspx?do=viewProj&pn=FNE11-713> (www.sare.org | Project Reports | Search Database | project number "FNE11-713").

Rachel Whiteheart was a summer intern at the Cornell Small Farms Program during Summer 2012 and is now a junior Environmental Engineering major at Cornell University. She may be reached at rmw95@cornell.edu.



Dolan's gasifier loaded with grass pellets, ready to start producing syngas.

Photos by Rachel Whiteheart

NORTHEAST SARE SPOTLIGHT**Quinoa Curiosity**

Farmers David McClelland and Mei-ling Hom used SARE funding to trial the increasingly popular grain quinoa on their rural New York farm

by Abigail Woughter

Nestled on the eastern edge of rural Allegany County, New York, diverse Maplebank Farm is owned by David McClelland and Mei-ling Hom. Both formally trained artists, McClelland and Hom each bring a creative eye and an adventuresome spirit to their farming approach. In addition to growing buckwheat, garlic, and wild leeks, which they market to restaurants in Philadelphia, they recently started braiding strands of straw into what they termed "mushroom sculptures." Made by curving the straw braids into a donut shape, a mushroom sculpture is inoculated for rapid mushroom production and able to fruit in as little time as a month. The mushroom sculptures provide not only a food source but add beauty to the garden and increase soil health as they decompose.

In keeping with their exploratory approach to new crops, McClelland and Hom began experimenting with the highly nutritious grain quinoa in the spring of 2012. Quinoa is native to cool, mountainous regions of South America and is a close relative of the common Northeastern weed lambs quarters. Gluten-free, high in protein, and well-balanced in amino acids, the easily palatable quinoa has a quickly expanding American market.

First Attempts with Quinoa

Despite quinoa's growing popularity, production knowledge about the grain is limited.

McClelland recalls, "Driving from Philadelphia to the farm, we stopped at a grocery store to pick up some food for the farm, and they had a sale on quinoa. And we thought, 'This is odd. You don't find this in central Pennsylvania.' So we bought it and brought it back to the farm. We're cooking the quinoa and I said, 'Do you think they'd sprout?'"

Hom laughs and adds, "So we just threw it out into the field!"

"We knew nothing about where quinoa grows," McClelland admits. "We threw it out in the field and it sprouted like crazy, instantly. We thought, 'Well it works, but we didn't do this right. We need to figure this out.'"



Temuko variety after 27 days.

So McClelland and Hom attended a USDA-sponsored workshop on buckwheat and small grains in Big Flats, NY to learn more. There they met Dr. Elizabeth Dyck, a small grains expert who encouraged them to apply for a SARE farmer grant to investigate the feasibility of growing quinoa in New York for expanding Northeast markets. Dr. Dyck became the technical advisor for their SARE project.

McClelland and Hom experienced a positive public response after being awarded SARE funding.

"In a week of our receiving the grant, people

contacted us. People are really interested in this local, New York State quinoa. They said, 'Tell me how much it is, tell me how you do it.' And I said, 'Wait, we've just been awarded the grant. It's December! We won't know until next harvest time.'"

While creating local interest, the rising American demand for quinoa has also placed an economic burden on the South American countries that grow the crop, namely Chile, Peru, Bolivia, and Ecuador. In these countries, quinoa is a dietary staple of the indigenous people. Export prices are making it harder and harder for the local people to afford quinoa.

"Peru, Bolivia, and Ecuador have been incredibly successful at exporting [quinoa]," McClelland commented, "so much so that they don't have enough for themselves."

And with quinoa selling for up to \$5/pound in the U.S., few of the South American working class can afford to buy any.

As McClelland put it, "The crop goes where the money is."

The unfair economic burden on the countries of production over the countries of consumption helped McClelland and Hom justify the need for locally-grown quinoa. Local New York State quinoa growers could earn \$5/pound while reducing production pressure on struggling South American economies.

Furthermore, cold hardy and low management, quinoa bore many similarities to a crop McClelland and Hom were already growing: buckwheat. Both pseudo-cereals require cool night temperatures to set seed and are adapted to higher altitudes like that of Maplebank Farm at 2,000 feet. Recognizing quinoa's potential to grow well in cool Northeastern upland regions,



McClelland and Hom were surprised by the lack of available information about its production.

"Quinoa is one of those things where whoever is doing it is sort of doing it alone without a lot of network, without a lot of resources," said McClelland. This was a problem he and Hom hoped to rectify by thoroughly documenting and making available their findings.

A Multi-faceted Experiment: Exploring Varieties, Equipment, and Climate

McClelland and Hom used their SARE funding to purchase four named varieties of quinoa: Oro de Valle, Temuko, Shelley Black, and Faro, from seed sources in California and Oregon. Farming organically, McClelland and Hom prepared the seed beds by tilling; no soil amendments or irrigation lines were utilized. Two sets of eight observational plots were designated on two adjoining one-acre fields. These main test plots at an altitude of 2,000 feet were planted by two different methods. One field was broadcast seeded with a cyclone seeder and the other drill seeded with a wheel planter. Just up the hill at 2,200 feet, the varieties were planted uniformly using a tractor-pulled drill seeder to simulate farm-scale production. McClelland and Hom planted their quinoa during the first week of May and monitored germination rate, crop growth, daily temperature, and resultant seed production rate, among other

See Quinoa page 24



Shelley Black variety after 104 days.



Faro variety after 104 days.

Quinoa from page 23

indicators, for the duration of the spring and summer. This project sought to demystify quinoa production and provide data to help Northeastern growers evaluate the feasibility of successfully producing quinoa.

Trial and Error

The summer of 2012 proved to be a challenging growing season in Allegany County. Unusually high temperatures in April gave way to a storm in late May that left six inches of snow in its wake.

Despite the unexpected cold followed by little rain and high temperatures throughout June and July, three of the four quinoa varieties grew well and evenly, outcompeting weeds and successfully forming seed heads (Shelley Black was the outlying variety that germinated poorly and grew sporadically).

However, the early May planting date meant that the quinoa reached critical flowering during the hottest portion of the summer, which McClelland and Hom identified as the most likely reason that almost every seed head was empty come harvest. As with buckwheat, temperatures above ninety degrees Fahrenheit are known to cause blasting.

"Blasting," McClelland explained, "is when the pollen is damaged by heat," inhibiting proper fertilization and seed production. "And that's why last year being the hottest year in 147 years may have been the deciding note for this project."

McClelland also mused whether or not photoperiod contributed to the lack of viable seed.

"Beyond just the temperature problem," he said, "maybe the photoperiod is wrong. Especially in June, the days here get really long. And these plants come from near the equator where they're used to even day length."

Though they failed to harvest a crop of quinoa, McClelland and Hom learned a great deal about quinoa in 2012 and are continuing trials this spring.

Looking Forward

This year, McClelland and Hom continue their quinoa experiment with successional planting. Every two weeks starting the first week of May and continuing until the fourth of July, they plant a small observational test plot, hoping to identify the planting window that maximizes seed production.

Last year, McClelland and Hom planted their quinoa during the first week of May when the potential for frost was relatively low. Yet the unexpected drop in temperatures in late spring had little effect on the quinoa, leading them to believe that a different planting date could be the solution to seed production issues.

"Maybe by planting them before you have your last frost date," McClelland reasoned, "you could have them mature before you have your hottest temperature."

SMALL FARM QUARTERLY

This is what McClelland and Hom seek to discern from their successional planting this year. If successful in getting a viable seed crop, Hom sees many more questions that must be answered.

"The next step," said Hom, "would be how do you harvest it? How do you clean it? How do you make it market ready?"

McClelland and Hom specifically want to find out if they can harvest their quinoa crop with the same combine used to harvest the buckwheat they already grow, which would make the addition of quinoa onto a Northeastern grain farm all the more plausible.

To learn more about SARE project FNE12-760, download a brochure and the final report by visiting <http://mysare.sare.org/mySARE/ProjectReport.aspx?do=viewRept&pn=FNE12-760&y=2012&t=1>. To follow along with ongoing quinoa research at Maplebank Farm, contact David McClelland and Mei-ling Hom at meilinghom@yahoo.com.


Abigail Woughter is a rising junior Agricultural Sciences Major at Cornell University and served as the Cornell Small Farms Program summer intern in 2013.



Mushroom sculpture. Oyster or shiitake mushroom spawn is placed in an inner ring of the braided straw.

Photos by David McClelland and Mei-ling Hom

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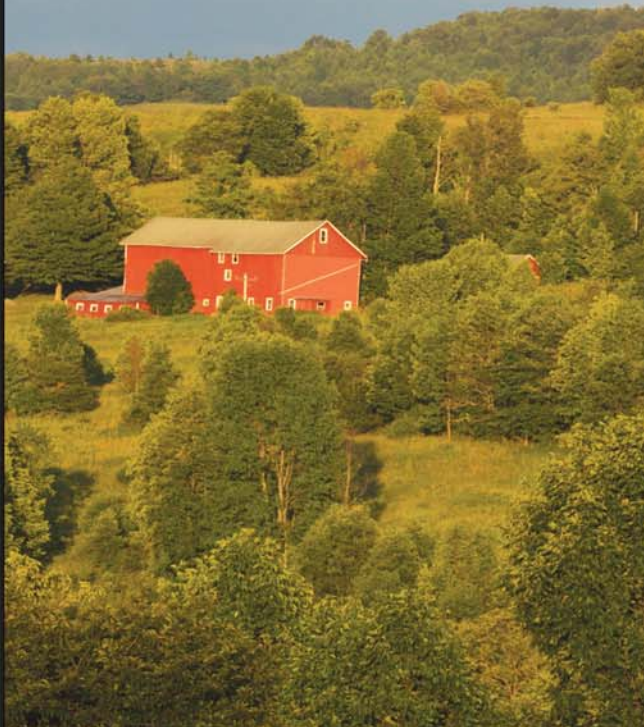
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